

# AMERICAN JOURNAL OF INSANITY

## SUGGESTIONS AND PLANS FOR PSYCHOPATHIC WARDS, PAVILIONS AND HOSPITALS FOR AMERICAN CITIES.<sup>1</sup>

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While Germany is supposed to furnish us examples of psychopathic hospitals, it is well to remember that many of her greatest cities have only psychopathic wards in general hospitals, which are very poorly equipped, serving largely for detention pavilions and quite inadequate for modern psychiatric purposes. From such hospital wards clinical material is drawn for illustrating lectures in psychiatry at the medical schools, as at Vienna, Berlin and Munich. There are but eight psychopathic hospitals in all Germany, located at Heidelberg, Strassburg, Leipsic, Halle, Freiburg, Würzburg, Giessen and Kiel. They were established in the relative chronological order here given. There are, however, other hospitals planned and in course of erection.

Griesinger framed the first coherent plan for the establishment of psychopathic hospitals in Germany, although the organization of psychiatric wards was advocated as early as 1860.

Scholz established isolation rooms and observation wards in connection with the Bremen general hospitals in 1870, and

<sup>1</sup> Read before the New York Psychiatric Society, January 6, 1904.

Reigers also at about the same date organized a similar provision at Würzburg for 50 or 60 patients; he also suggested the building of smaller state asylums. Fürstner opened the first psychopathic clinic at Heidelberg in 1878, which was built on the block style under one roof. The workings of this clinic in modern psychiatry under Kraepelin are perhaps the most familiar to us. A few months after the opening of the clinic at Heidelberg, Fleischsig opened the second clinic at Leipsic.

The pavilion principle in psychopathic hospital construction, however, was first carried into effect at Halle by Hitzig in 1891, and was an object of special praise by Wernicke and Sioli.

It remained, however, for Somers, of Giessen, to fulfil most completely the practical ideas of Griesinger in establishing a psychopathic hospital on the pavilion plan, independent of a general hospital and with an out-clinic department. All forms of brain disease accompanied by psychic defect or alienation, such as the psychoses of epilepsy, alcoholism, hysteria and the like are received in this hospital and clinic. Still more recently, Semmerling at Kiel has added new details in construction and arrangement in the newest psychopathic hospital of Europe, which was opened for the reception of patients in 1901.

The underlying causes for creating special mental clinics or city asylums in German cities were the same as with us, namely, the urgency of early care of the acute insane, the remoteness of the great country district asylums, and the formality and delay of admissions to these hospitals. Moreover, there was pressing need for public provision for the psychoneuropath, the hysterical, epileptic, alcoholic and borderland cases of insanity not certifiable, yet in need of prophylactic psychopathic treatment. It has been amply proven that observation and careful adjustment of broad principles of treatment to this large class of psychoses and neuroses have resulted in a marked diminution in the demand for so many private sanatoria which, as with us, are only too often impossible for the poor. At Giessen in 1896, 6.5 per cent of the total admissions were not of the class of certifiable insane, and in five years it increased to 23 per cent. Increased attention to this class is very much encouraged for obvious reasons.

Considering Germany as a whole, there are three types of provisions for the acute insane: (1) special wards in general hos-



pitals, as at Vienna, Berlin, Munich; (2) pavilions adjacent to general hospitals, as at Dresden, Cologne and Stuttgart; (3) independent psychopathic hospitals, which are further subdivided into those consisting of the block style of construction, as at Heidelberg, and those of separately detached pavilions, as at Halle, Giessen and Kiel.

A short description of the most desirable provision in Germany for the acute insane may be made here. In 1897 the city of Kiel purchased land for a psychopathic hospital on a beautiful and commanding site overlooking the Kieler bay, with an elevation of about 100 feet above the sea level. Plans were made in the following year and construction was begun in 1899. The hospital was formally opened for the reception of patients on November 1, 1901. Photographs<sup>2</sup> were kindly furnished me by Professor Semmerling, director of the clinic, and who is also professor of psychiatry in the University at Kiel.

The character of the hospital construction is on the pavilion or villa plan. The houses are of the country type, made of pressed brick, plastered outside and trimmed with red brick. They are gabled artistically after the old German style. The capacity of the hospital is 139 beds, 23 of the first and second class and 116 of the third class, the latter being similar to our indigent class; the entire cost of the plant was \$310,725, or about \$2275 a bed. An average cost over all of \$3.98 per cubic meter. The daily per capita cost in maintenance is about 55 cents for the third class and 70 to 95 cents for the first class. The hospital is heated by steam from a central boiler plant; the grounds and buildings are lighted by electricity, while gas is used for fuel. The water supply and sewerage disposal are in connection with that of the city proper. The hospital is on the border of new Kiel and one mile from the old part of the town, the university and the railroad station. It is connected by short and long-distance telephone, and has a local system connecting all parts of the hospital. Ventilation is maintained by a system of forced draft by means of which all parts of the hospital are kept at uniform temperature and moisture. The central portion of the main building is given

<sup>2</sup> Reproduced in a short description of this hospital in the Proceedings of the American Medico-Psychological Association, 1903.

over to administration offices, laboratories, examination rooms, polyclinics, lecture rooms, library and living rooms for the medical officers of the staff. The barracks or the pavilion attached to either side of the administration building serve for reception and observation wards; the villas for the quiet and convalescent of first, second and third class; the ground floor being for the first and second class. Special rooms in this latter house serve for certain types of convalescents, while isolation houses are of course for the noisy and excited cases.

In view of the foregoing provision for the care of the acute insane in Germany, we have endeavored to outline our suggestions for psychopathic provisions for American cities in the three following types of plans which we will consider briefly:

First.—Psychopathic wards in or attached to general hospitals. These are intended for cities of 10,000 to 20,000; the plan consists of a hospital wing of two stories, a ward for each sex. It is merely a suggested interior arrangement, as the exterior and dimensions must be governed by those of the existing building to which the wards are added. Arrangements have been made so as to gain the maximum space for observation or open wards, as it is believed this principle is most convenient for investigation and supervision. The acute insane need open wards and not cell care. That such wards should not be built in connection with workhouses, almshouses or infirmaries, does not need comment. Attention is called to the special arrangements made on the plan for the permanent baths and hydrotherapy. This psychopathic ward provision is similar in many respects to that in operation at Albany, New York. See Plate I.

The second plan is for a psychopathic pavilion adjacent to, but disconnected from the general hospital, in cities of 20,000 to 50,000. In addition to the special features of the psychopathic wards of Provision 1, it has trained resident alienists and nurses, and contains an out-clinic department which should furnish excellent facilities for selection of cases, and aid much in reducing the fear with which the public in general regard such patients. The pavilion is intended to hold cases for a longer period than the ward (Plate I). The ward or pavilion should not be established in too large a city lest too great demand be made on inadequate space, thus forcing a small clinic to serve as a place for diagnosis and certification only, such as has been done at the pavilion at

Bellevue Hospital, New York. Under ordinary circumstances the acute insane may be kept in the ward or pavilion at least six weeks; the average longest time should not be more than four months. In a measure the length of stay may be regulated by the admissions. In German pavilions possessing a resident physician, plenty of reception room and open wards, such as at Dresden, Koenigsburg and Breslau, the ratio of cases received is about 1 to 500 of the total population, while with limitation in these requirements, as at Bremen and Dortmund, the ratio is about 1 to 1000. The manner of admission of insane cases to all three provisions might be somewhat similar to that in Germany, where the cases are voluntarily committed or remanded to the hospital by a city magistrate, pending examination. A formal insanity certificate is only executed in transferring cases from the psychopathic hospitals to the large state asylums. If the large state hospitals are adjacent to the cities, the pavilion may be formed as an adjunct to such hospitals, as in New York State. We must bear in mind, however, that for obvious reasons, many desirable advantages for receiving acute and borderland cases of insanity, and many psychoses not certifiable, must be sacrificed, if psychopathic wards are attached to state hospitals, instead of general hospitals in the cities which the state hospitals approximate. See Psychopathic Pavilion, Plate I.

The third and most desirable provision: The psychopathic hospital should have a separate and independent existence. Other things being equal, it should not be more difficult of access than a general hospital. In view of this fact we have adhered to the pavilion plan of detached cottages or wards which will cover approximately but  $5\frac{1}{2}$  acres of land. There is hardly a city in which the pavilion plan outlined in this paper is not possible excepting in New York City. An adaptation of the psychopathic hospitals in block plan, as already in pavilion type, might be made for New York City, where of necessity the ground space for buildings must be very limited and costly. The administration might remain the same with accessory wings. The out-clinic department could be placed in the basement where most accessible. The wings adjacent to the administration building would be four full stories in height, accommodating 25 patients in each ward floor and arranged in the following order (block arrangement):

First floor, reception wards, men and women.

Second floor, isolation wards, men and women.

Third floor, convalescent wards, men and women.

Fourth floor, nurses and roof gardens. See Plates XII, XIII and XIV.

The psychopathic hospital should serve for reception and certification, and all practical needs of a public hospital. It ought not to contain more than 150 to 200 beds. If cities are so large as to require more accommodation, two or more might be established, as is contemplated in London.

#### PAVILION PLAN OF DETACHED COTTAGES.

Our plan is intended to be sufficient for the largest American cities.

The hospital will accommodate the following:

150 patients.

50 nurses, two-thirds of whom will be women.

6 resident physicians.

1 medical director.

And for the accommodation of the above the following buildings have been deemed necessary:

1 administration building for offices, laboratories and out-clinic departments, adjacent and connected to the central administration building.

2 observation wards holding 25 of each sex.

2 isolation villas for the disturbed cases.

2 convalescent villas for quiet and convalescent.

2 cottages for nurses.

1 kitchen, power house and laundry.

1 mortuary and chapel.

1 director's cottage.

1 stable for ambulance and horses.

In all there will be 13 buildings distributed and arranged on about  $5\frac{1}{2}$  acres of ground as shown on the general Plate II, and connected by underground conduits as indicated. An explanation of the plan of arrangement in each of the buildings is attached in the legend.

The style of architecture is Spanish in character, and has been

designed with a view to entire simplicity of line and color, as well as in regard to as moderate cost as would be consistent with good construction. An air of repose in design, quietness and unobtrusiveness and general home comfort, has been sought for, without lowering the general fundamental purpose and aspect.

Above the basement ordinary brick will be used, waterproofed exteriorly, and plastered with cement of a dull gray tone, and on the interior Keene's cement or some equally good plaster to be applied throughout. The plastering of exterior walls with cement is suggested for neatness of appearance, and for the possibility of color effect, as a warm gray is cheerful and homelike in strong sunlight, is not cold or forbidding in winter, and lends itself readily to roofs of any color. In the present instance roofs with projecting eaves and covered with red Spanish tile have been suggested, which produces a quiet contrast to the trees and shruberies. Plates II and XI will explain the points just covered.

The interior arrangement of the hospital permits a convenient classification; open observation wards for acutely disturbed cases; permanent baths for the maniacal; hydrotherapy and electricity and special diets for all cases. Those patients who need to go about a great deal, more than the limited confines of the gardens permit, should either be discharged as sufficiently convalescent to return to their homes for an out-clinic observation and care, or, if still in need of restricted liberty, should be sent to a state hospital. In case of the latter such patients not sufficiently convalescent or discharged might be transferred to a colony which might serve alike for acute, convalescent and chronic cases.

Arrangements have been provided for the clinico-pathological teaching of psychiatry and the necessary laboratories for pathology, chemistry and psychology. It is believed that those studies should be undertaken first in these hospitals which immediately subserve our knowledge of the pathogenesis, treatment and pathology of mental diseases.

#### PSYCHOPATHIC HOSPITAL.—ESTIMATE OF COST.

The following buildings have been classified under three different types of construction as demanded by their purposes:

*A. Complete Fireproof Construction.*—To be used in isolation

cottages only; walls to be lined with tile in toilets and baths, ar with waterproof plaster; rounded jambs, sanitary base; granolithic floor, together with other usual materials.

*B. Wooden Beam Construction.*—To be used in convalescent cottages, reception wards, administration and kitchen buildings.

*C. Ordinary Construction.*—To be used in nurses' buildings, morgue, director's house and stable.

*Plumbing.*—To be of best vitreous ware in buildings for patients. Fixtures in all buildings to be appropriate to inmates.

*Heating.*—To be of direct, indirect and direct systems.

*Lighting.*—To be by electricity throughout, with necessary switches and cut-offs.

*Ventilation.*—To be by a direct system, with inlets controlled by valves.

Itemized and total cost of buildings is shown in following table:

Building and Description.	Total no. of Patients in Building.	Area per Capita.	Area per Floor.	Cubic feet per Capita per Floor.	Cubic feet in Building per Capita.	Total Cubical Contents of Building.	Cost per Patient in Building Specified.	Cost per Building and Extras.	Total Cost.
1 Administration .....	..	..	7,600	....	....	318,200	.....	\$47,730	.....
2 Kitchen.....	..	..	7,296	....	....	175,104	.....	26,265	.....
3 Reception Wards (2).....	25	287	3,740	2,870	5,385	134,640	\$808.	40,392	.....
4 Isolation Cottages (2).....	25	353	4,240	3,530	6,106	152,640	1221.	61,056	.....
5 Convalescent Cottages (2).....	25	353	4,240	3,530	6,106	152,640	911.4	45,792	.....
6 Nurses' Building (2).....	30	249	3,740	2,870	5,385	134,640	.....	34,332	.....
Note 3 to 6 inclusive are figured throughout on the basis of single buildings, except in cost per building column—where full cost is inserted.									
7 Mortuary-Chapel .....	..	..	600	....	....	15,600	.....	1,716	\$257,283
Average cost for the above on a basis of 150 Patients=\$1,715.20 per Patient.									
8 Conduit.....	..	..	....	....	....	.....	.....	9,676	.....
9 Engines, Dynamos, etc....	..	..	....	....	....	.....	.....	10,000	.....
10 Boilers.....	..	..	....	....	....	.....	.....	10,000	.....
11 Lifts 6 @ \$500, 10 @ \$100.....	..	..	....	....	....	.....	.....	4,000	.....
12 Superintendent's House (1).....	..	..	....	....	....	.....	.....	10,000	.....
13 " Stable (1).....	..	..	....	....	....	.....	.....	3,500	.....
14 Cottages for help (3).....	..	..	....	....	....	.....	.....	6,000	53,176
									\$310,459
Average total cost for the above on a basis of 150 Patients, = \$2,069.70 per Patient.									

Attention is called to the per capita area and cubeage per floor, which in the reception building is more than twice the amount usually allowed, and is more than three times the usual amount in both isolation and convalescent cottages.

6<sup>c</sup> A.—This increased area is due to several causes:

1. Cottage type being used instead of regular ward type.

2. The number of baths and space demanded by each group.

3. The maximum of accessory rooms as compared with a minimum number of patients. (These rooms ordinarily suffice for from 3 to 4 times the number of patients allotted herein.)

B.—The cubical contents is also excessive, and is directly due to area, as explained above, and to exceptionally high basements provided throughout all the buildings.

C.—Buildings for nurses are generous to extreme and could be greatly reduced in cost.

D.—Cost of administration building could be lessened 25% by changing clinical department to basement.

Rough estimate of cost per building on basis of 100, 150, 200 square feet per patient is appended herewith.

#### PSYCHOPATHIC HOSPITAL.

##### Revised Estimate of Cost.

	Revised Basis of Area.	Area.	Average Cost.	Revised Area.	Total Cubical Contents.	Cost.	Revised Cost.
1 Administration .....	....	....	....	....	....	\$47,730.25	\$35,748
2 Kitchen.....	....	....	....	sq. ft	....	26,265.00	26,265
3 Reception ward (2).....	150	3,740	\$421.00	1,950	70,200	40,392.00	21,090
4 Isolation cottage (2).....	200	4,240	750.00	2,600	93,600	61,056.00	37,440
5 Convalescent cottage (2) ..	200	4,240	561.00	2,600	93,600	45,792.00	28,080
6 Nurses' building.....	100	3,740	358.00	1,500	70,200	34,332.00	17,901
7 Morgue.....	....	600	....	....	....	1,716.00	1,716
						\$257,283.25	\$168,210

Average cost on basis of 150 patients for above buildings—  
\$1121.00 per patient.



## DATA.

It has been assumed that there will be in this institution the following:

- a. 150 patients equally divided between the sexes.
- b. 50 nurses, two-thirds of whom shall be women.
- c. 6 resident physicians.
- d. 1 medical director.

In addition to these there will be provision for the housing of those employed in the office, kitchen, laundry and engineering departments.

For the accommodation of the above the following buildings have been deemed necessary:

- a. 1 administration building.
- b. 2 observation wards, each holding 25 of each sex.
- c. 2 isolation cottages, each holding 25 of each sex.
- d. 2 convalescent cottages, each holding 25 of each sex.
- e. 2 buildings (nurses), each holding 25 of each sex.
- f. 1 kitchen, power house and laundry.
- g. 1 mortuary and chapel.
- h. 1 cottage for director.
- i. 1 stable for ambulances, &c., &c.

In all thirteen buildings, which are to be distributed and arranged as will be seen on the general plan, Plate II, and connected by underground conduits as shown.

## GENERAL PLAN.—PLATE II.

The situation of buildings permits:

- a. A maximum of sunshine and light.
- b. Direct currents of air.
- c. Direct ambulance and clinical service.
- d. Reception wards in close touch by covered passages with administration building, permitting constant observation of obscure, interesting or unclassified cases.
- e. An underground conduit system furnishing direct kitchen and laundry service to all buildings.
- f. The separation of violent and noisy cases from other types.
- g. Provision of special gardens for the convalescent.
- h. Buildings for the special use of nurses.

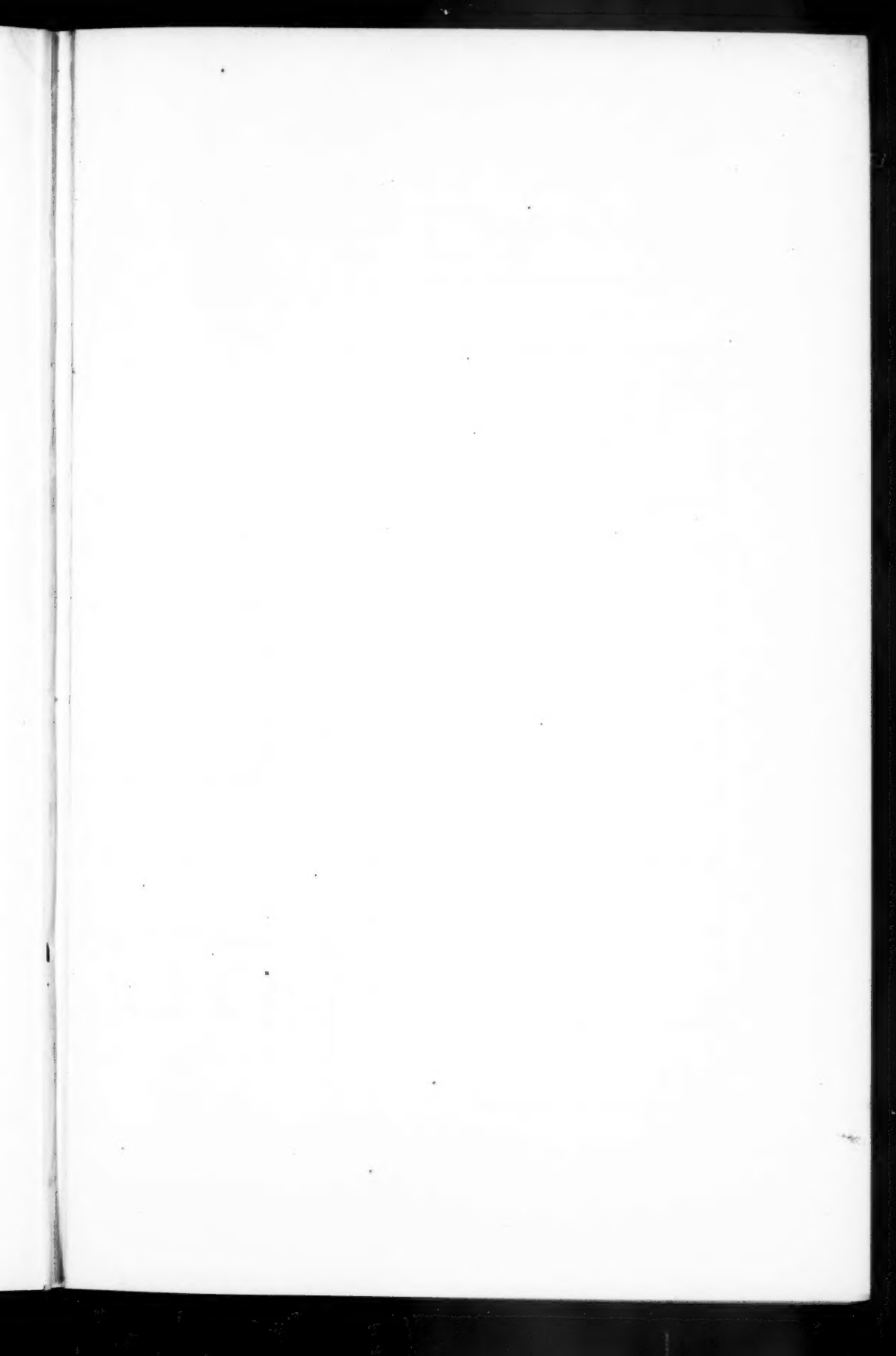
## MORTUARY AND CHAPEL.—PLATE II.

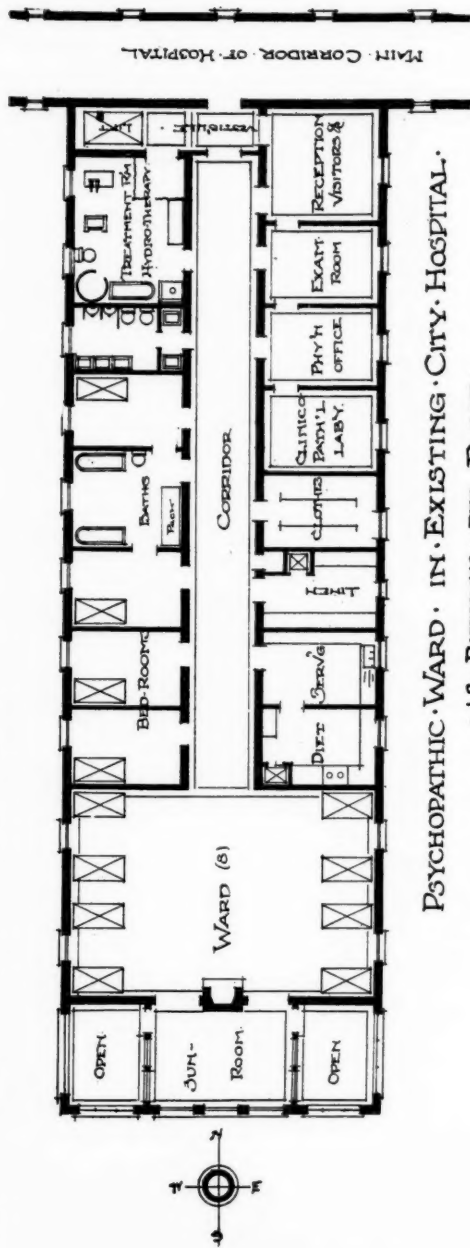
Of secondary importance in a hospital of this nature and therefore situated away from all other buildings, although it is to be connected by conduit with the isolation building.

RESUME.—Attention is called to open lawns between buildings, permitting the erection of tents for contagious diseases if necessary.

## STABLE.—PLATE II.

The ambulance service is not of first importance, as would be the case in a general hospital, and it is therefore treated as a private stable for the director's use.





# PSYCHOPATHIC WARD IN EXISTING CITY HOSPITAL.

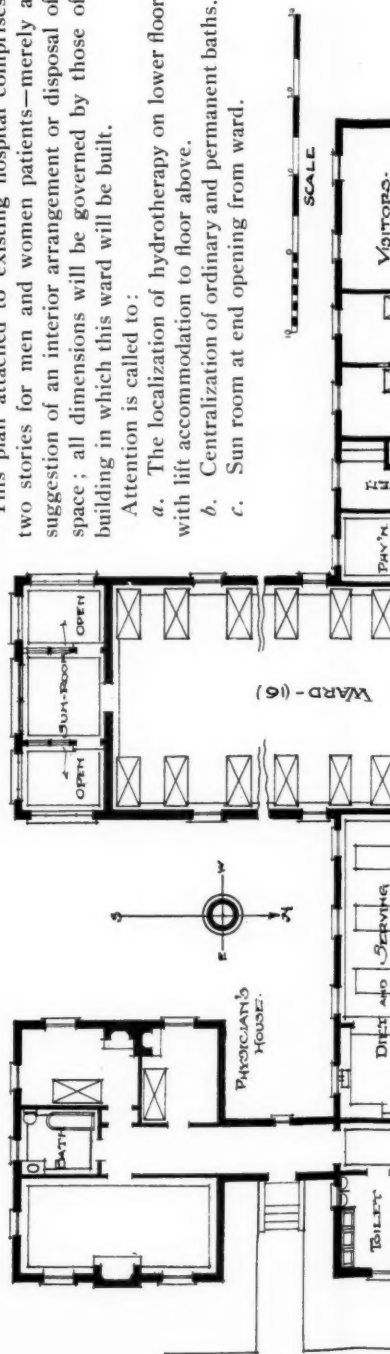
• 12 PATIENTS PER FLOOR.

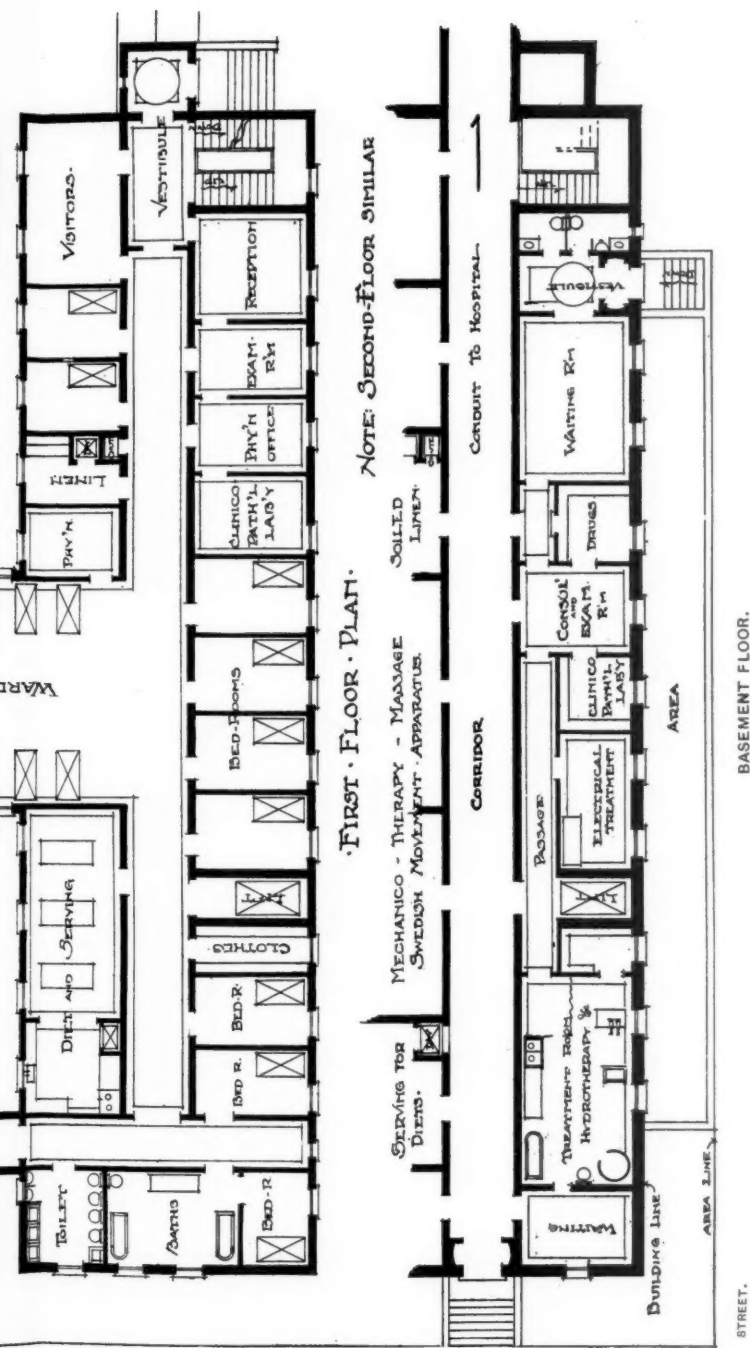
## PSYCHOPATHIC WARD.

This plan attached to existing hospital comprises two stories for men and women patients—merely a suggestion of an interior arrangement or disposal of space; all dimensions will be governed by those of building in which this ward will be built.

Attention is called to:

- The localization of hydrotherapy on lower floor with lift accommodation to floor above.
- Centralization of ordinary and permanent baths.
- Sun room at end opening from ward.

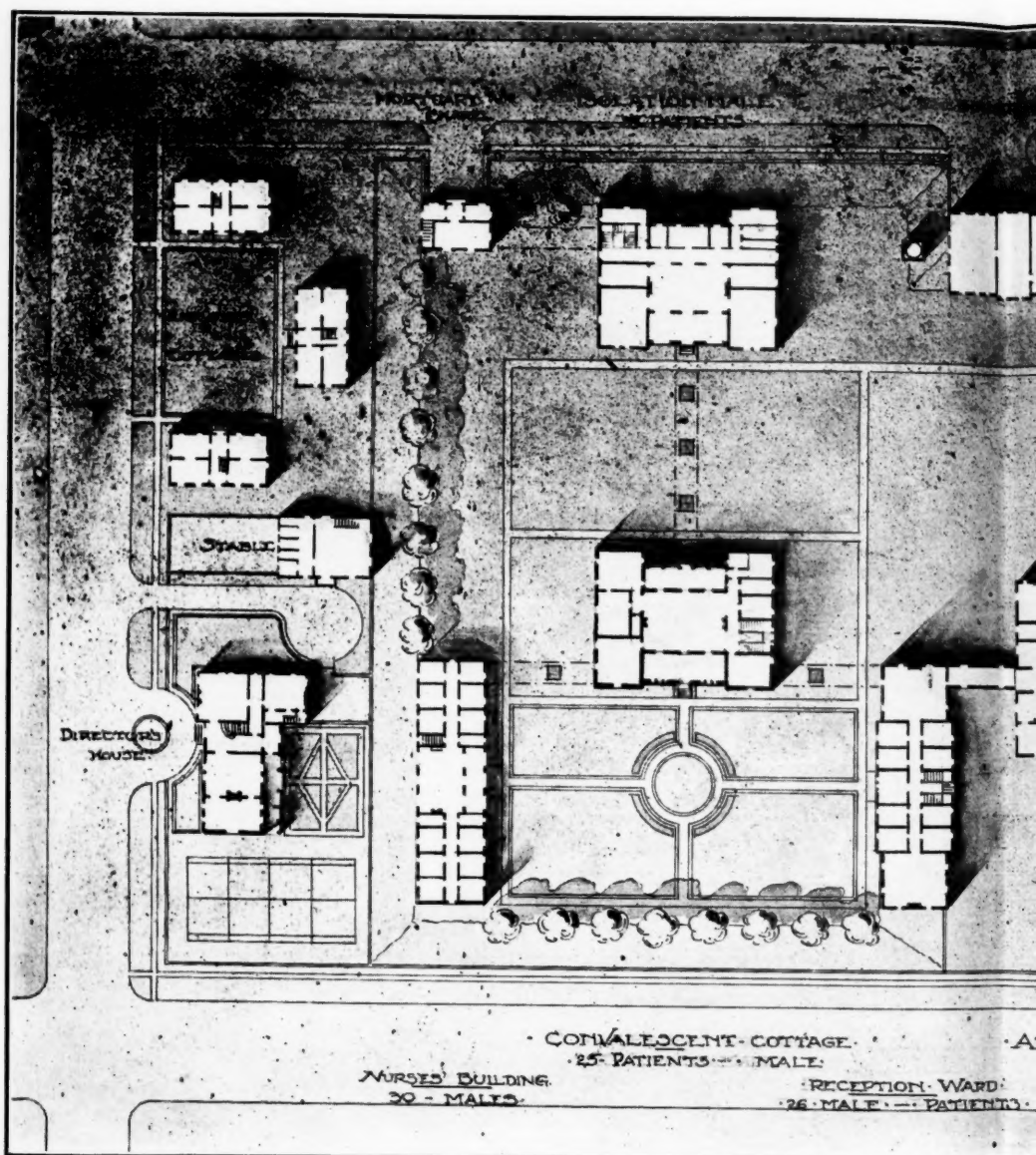




# PSYCHOPATHIC PAVILION IN CONNECTION WITH, BUT DETACHED FROM, GENERAL HOSPITAL.

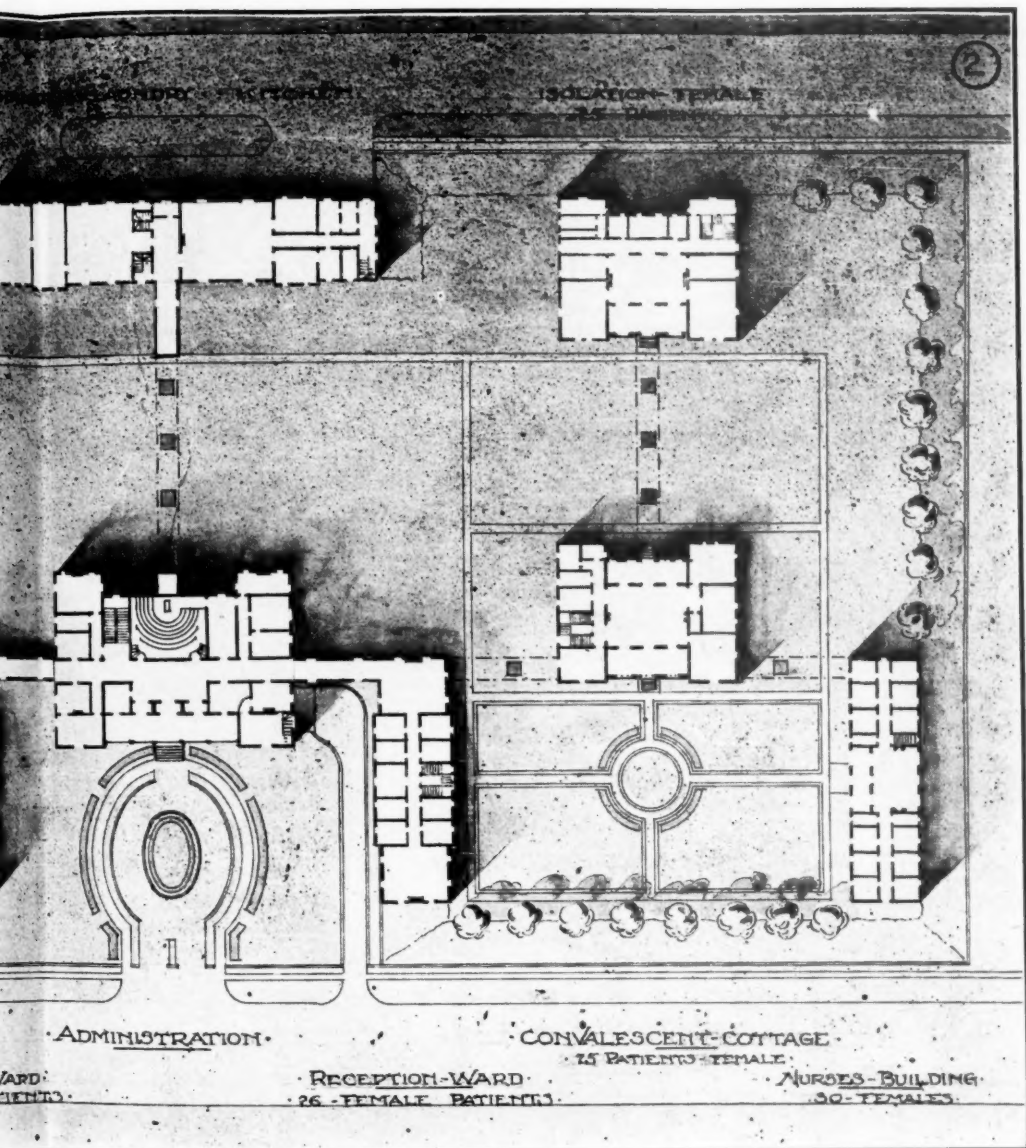
Note.—This pavilion is supposed to exist in a city of 20,000 to 50,000 population, and will have entrances from streets as indicated on plans. Attention is called to :

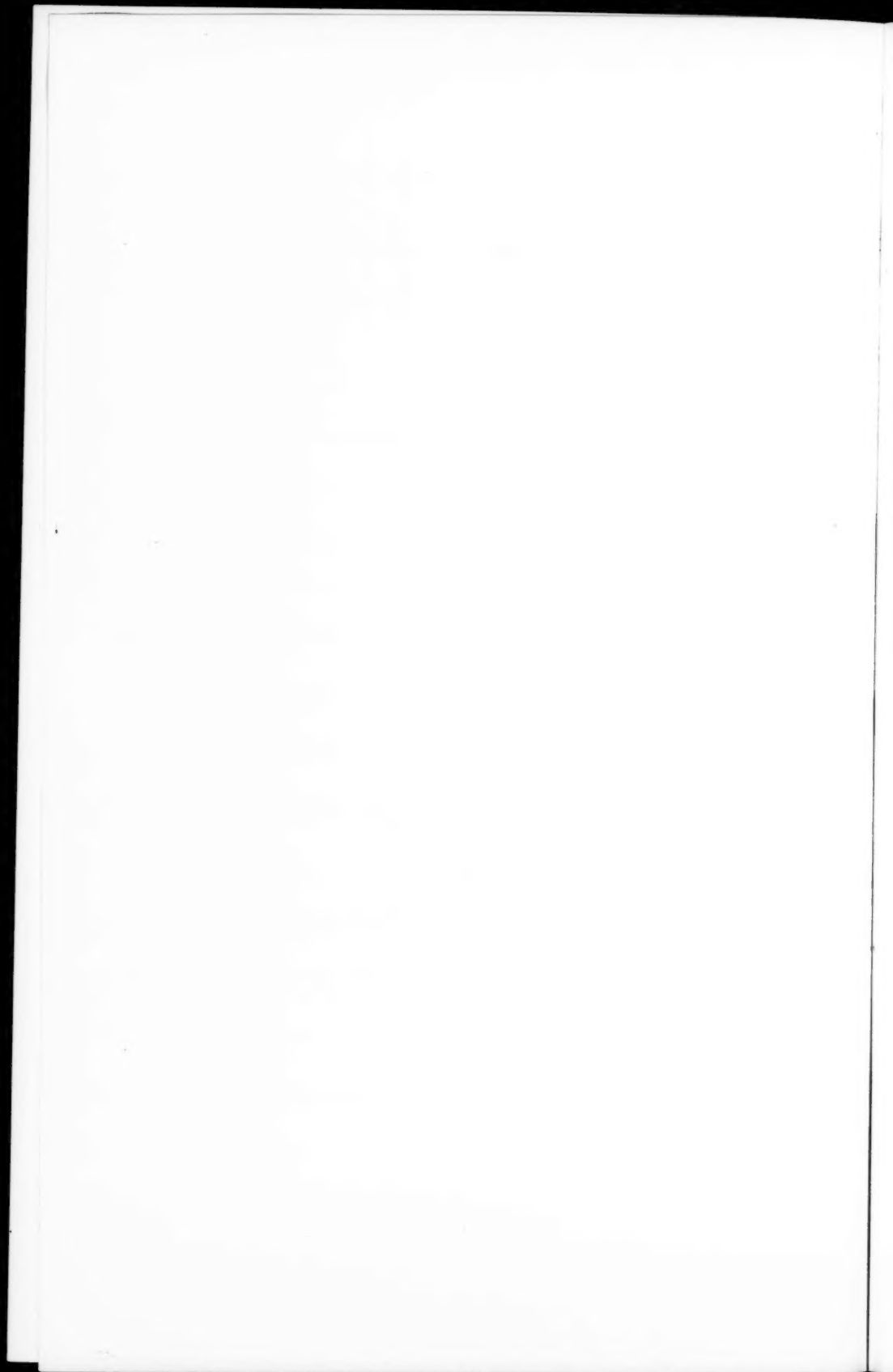
- Large open ward with sun room.
- Diet kitchen, etc.
- Separation of toilets, pack and bath rooms to east end, reducing obnoxious odors and noises to a minimum.
- Separate one-storied house for physicians, and connected with pavilion.
- Out-clinic department in basement, connected by lift to upper two floors and ensuring absolute privacy to all patients.



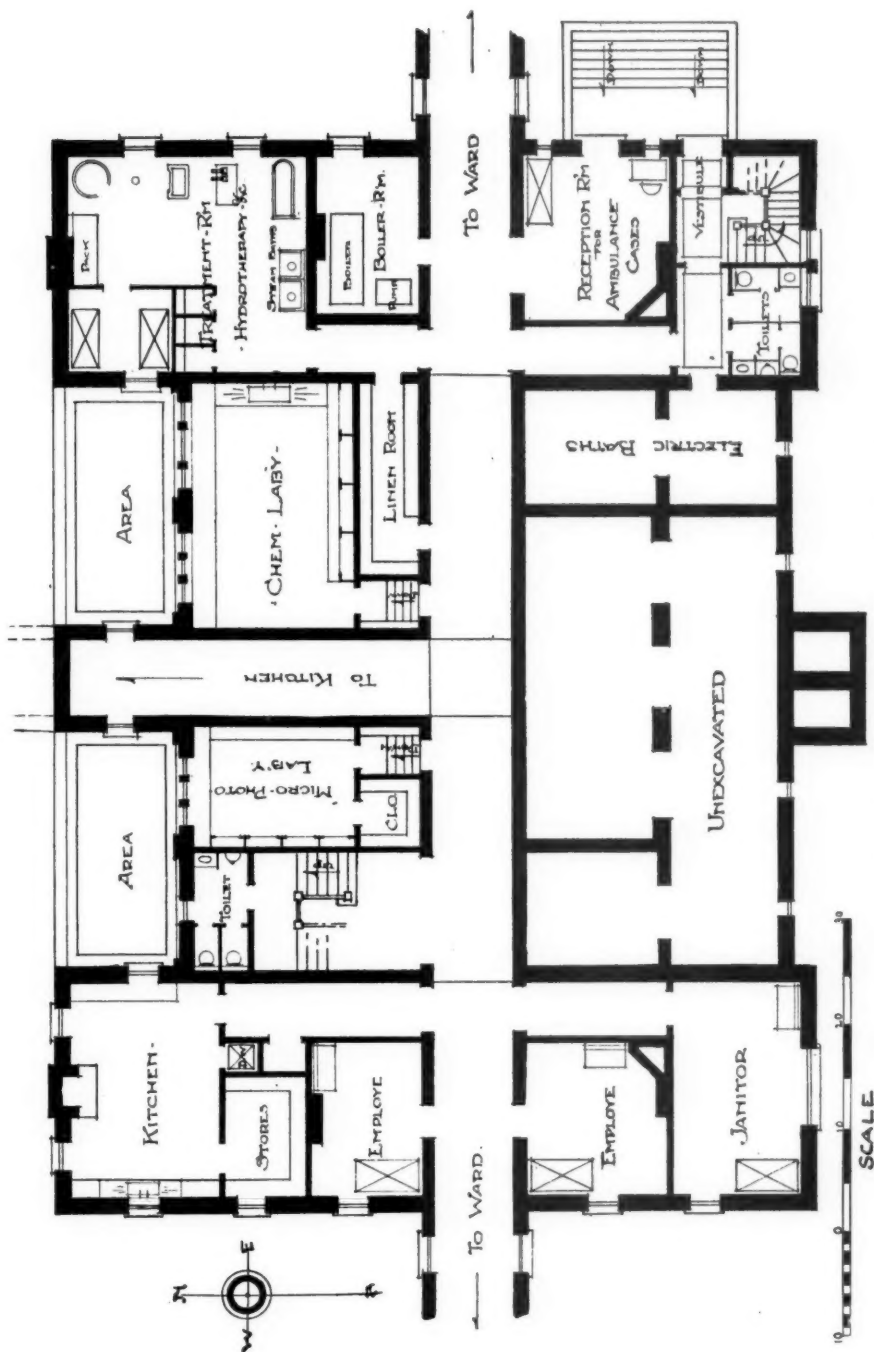
SCALE

KEY PLAN. PSYCHOPATH

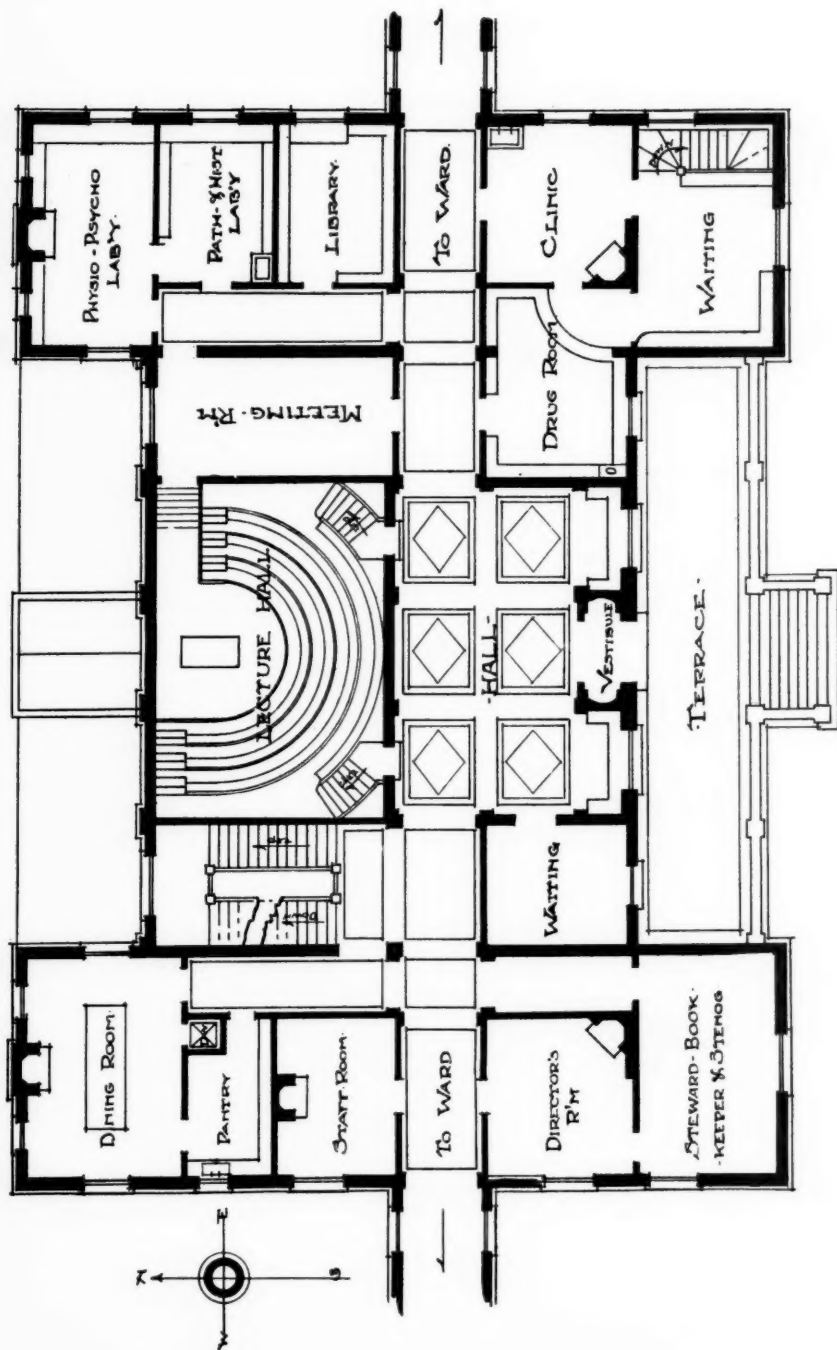






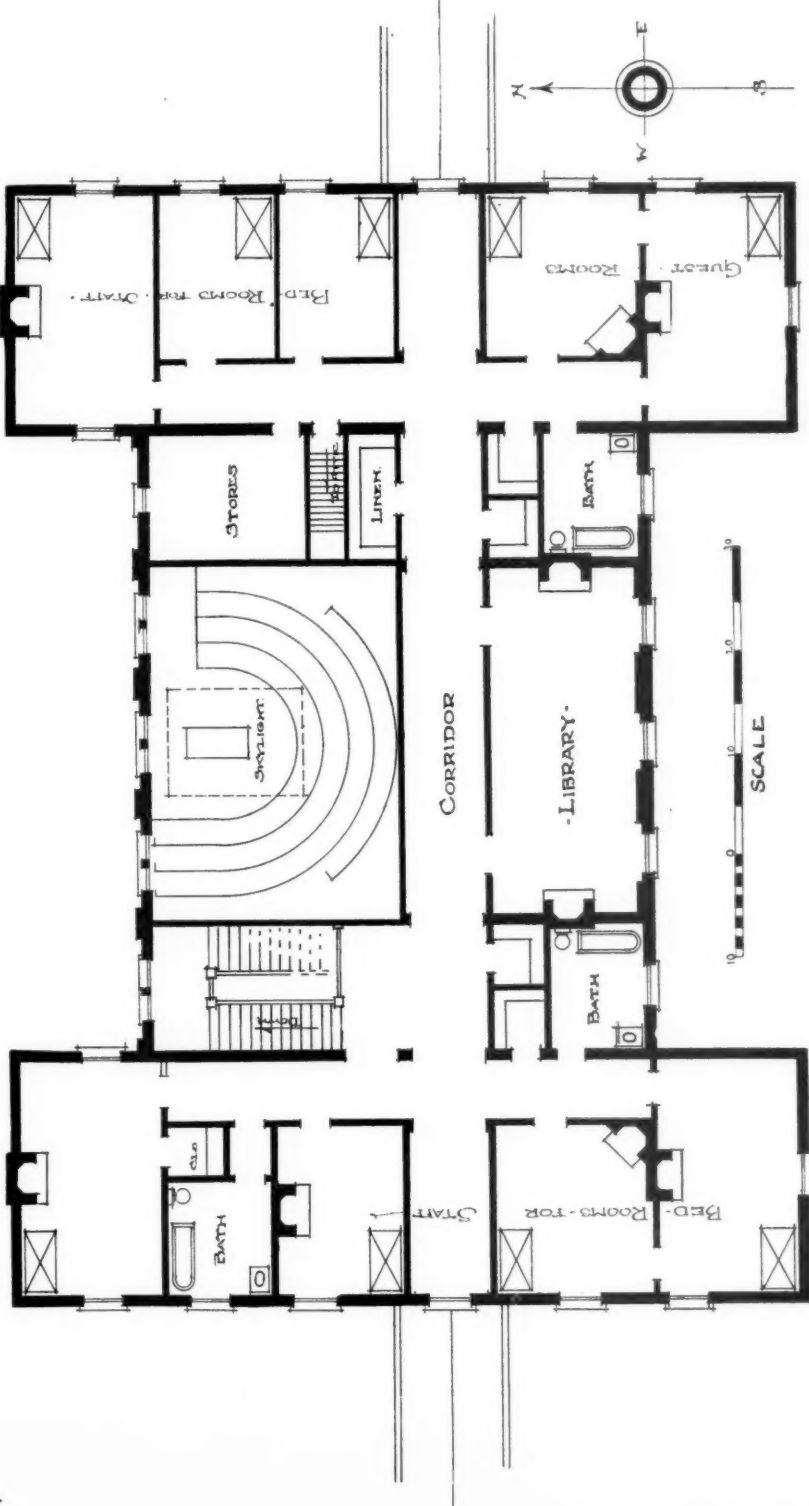


BASEMENT PLAN, ADMINISTRATION BUILDING.



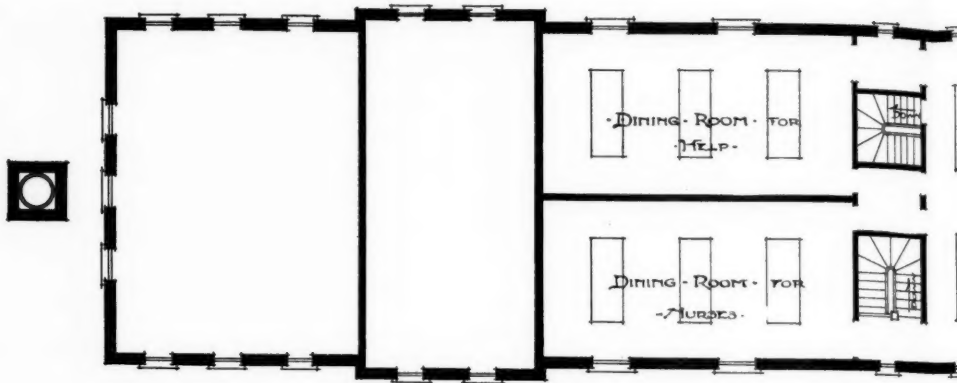
FIRST FLOOR PLAN. ADMINISTRATION BUILDING.

- a. Relegation of administration offices, dining rooms, out-clinic department and laboratories to separate wings, with the entrance hall and lecture hall as central features.
- b. Privacy of clinic department in connection with the hydrotherapy.



SECOND FLOOR PLAN. ADMINISTRATION BUILDING.

b. Privacy of clinic department in connection with the hydrotherapy.



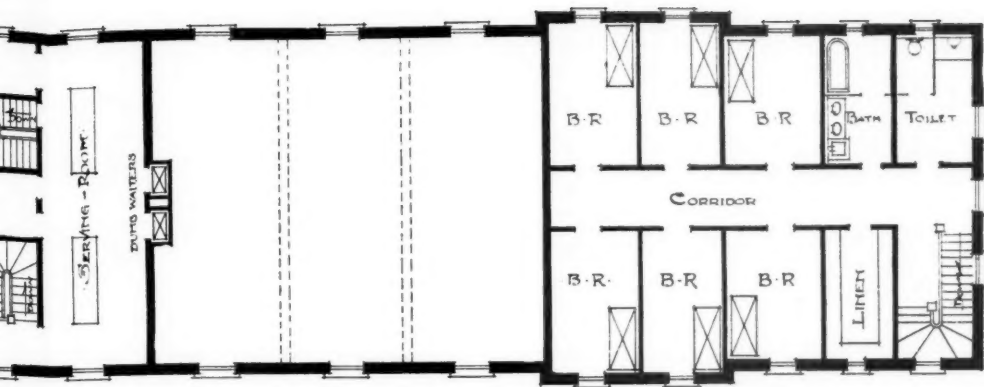
— SECOND —



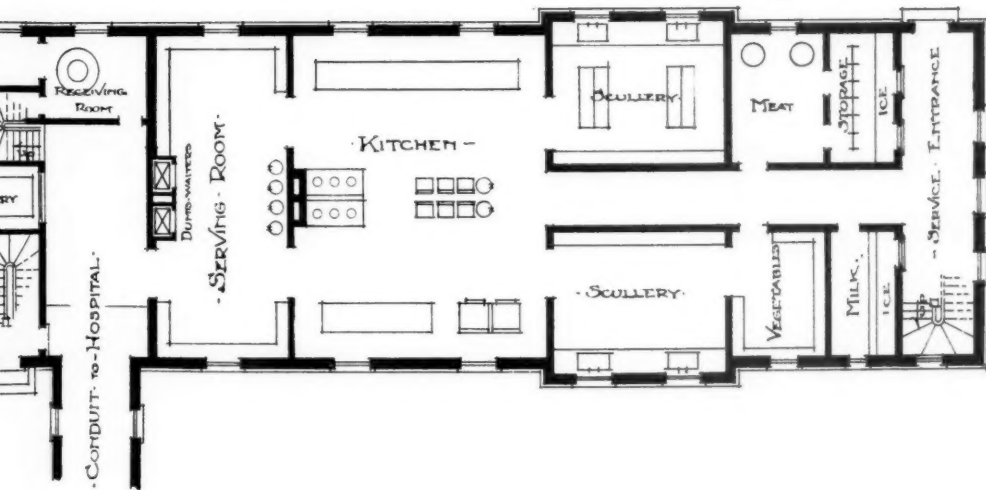
— GROUND-PLAN OF KITCHEN —

KITCHEN

- a. Accessibility of laundry and kitchen, to main conduit.
- b. Close proximity of engine room to laundry, giving economy.
- c. Special dining rooms for servants and nurses.
- d. All facilities for receiving of stores and coal, and their economy.
- e. Accessibility of sculleries.



SECOND FLOOR PLAN. —

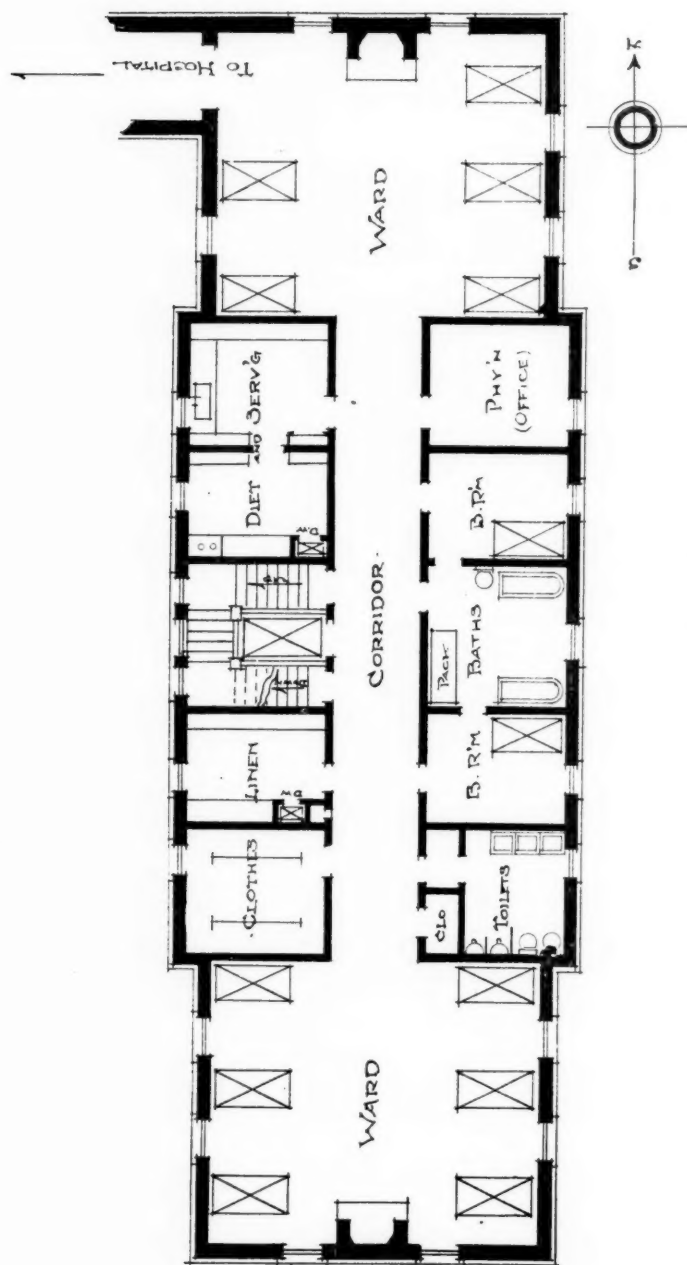


KITCHEN AND SERVICE BUILDING. —

KITCHEN, LAUNDRY, ETC.

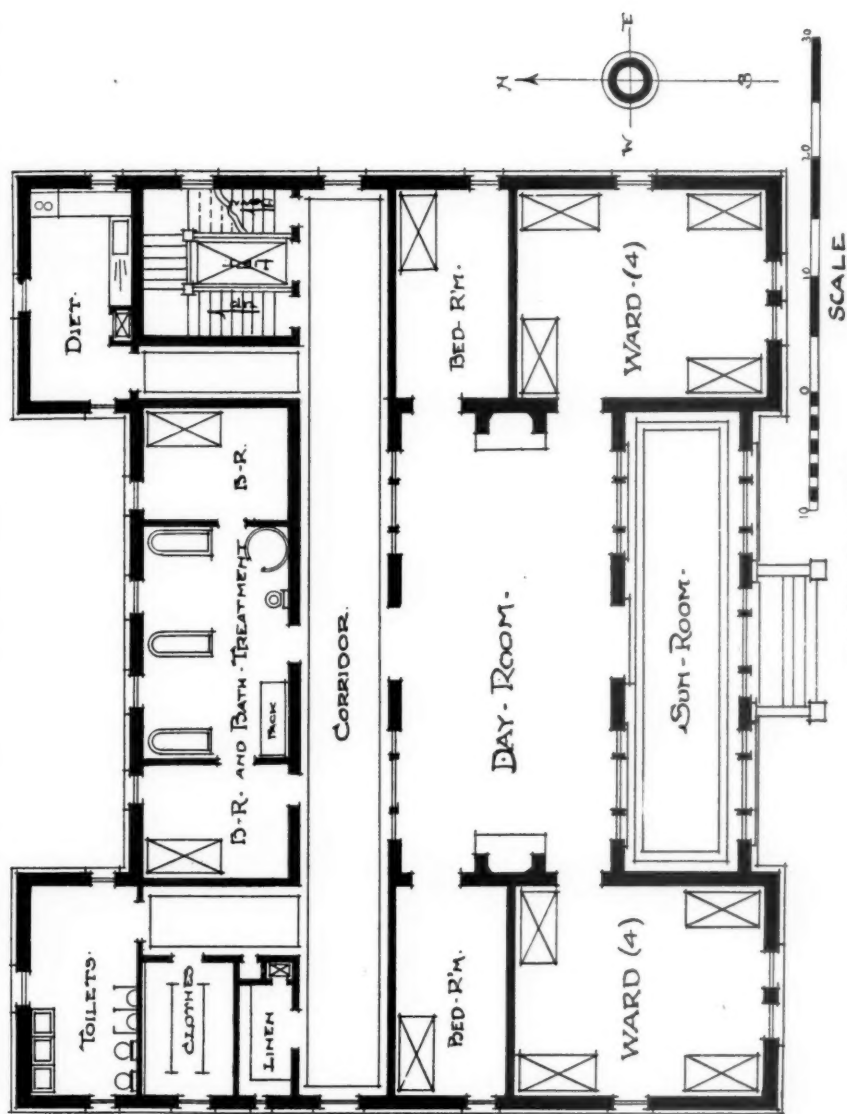
duit.  
g economy in transmission of power.

their economical transmission from storage to cooking and serving.



## RECEPTION WARDS.

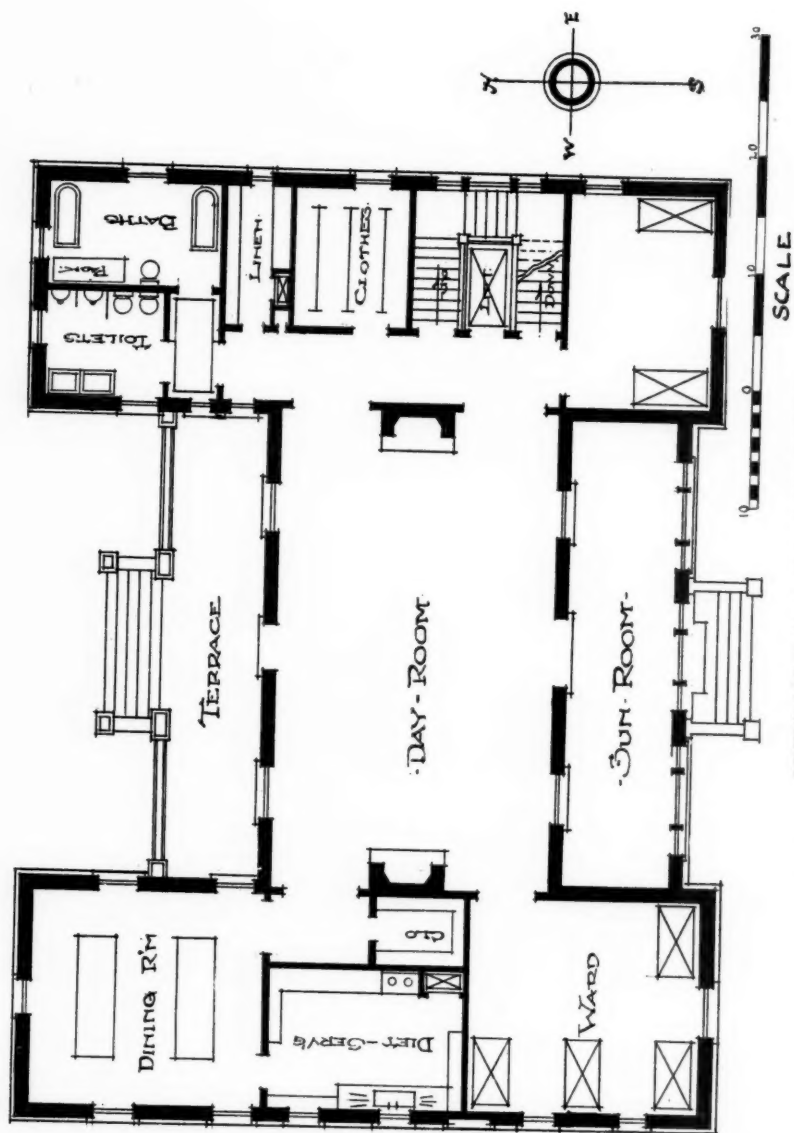
- a.* Arrangement of ingress and egress of patients by lift or stairs in center.
- b.* Principle of complete baths, water closets and pack table, with adjoining bedrooms.
- c.* Small wards, separate, but under easy supervision and control.



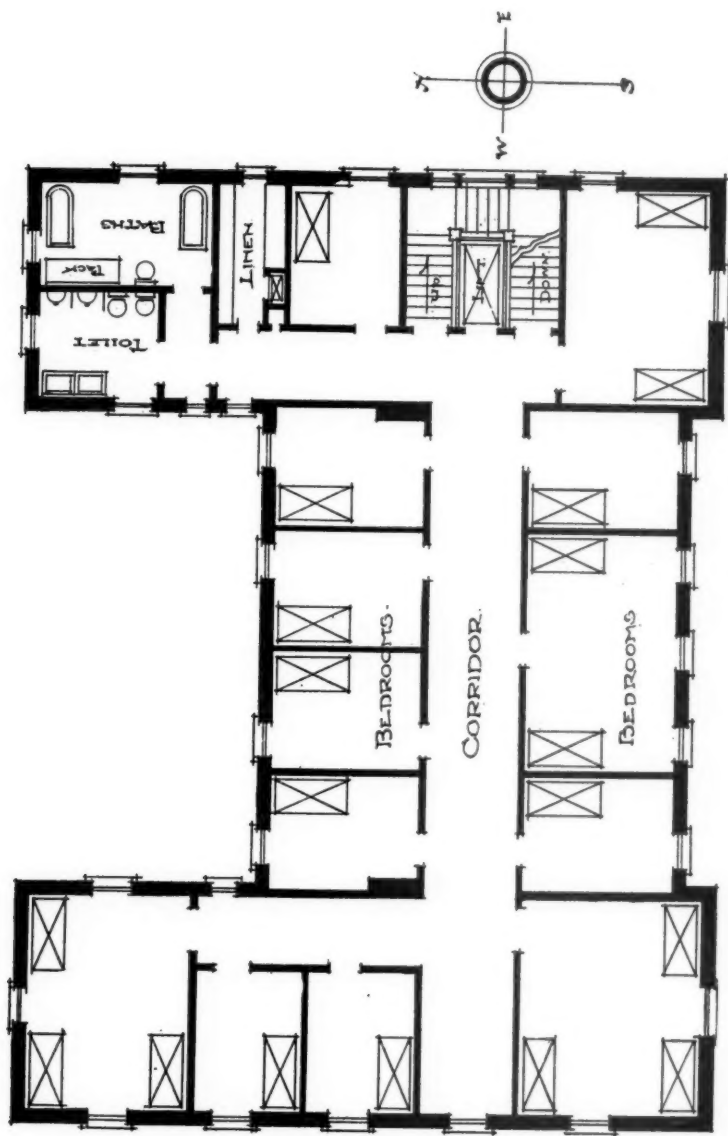
CONVALESCENT COTTAGES.

- a. Living rooms and bedrooms on separate floors.
- b. Principal wards adjoining large day room facing south.
- c. Ample porch and sun room.
- d. Entire separation and perfect ventilation of baths and toilet in the northeast wing.

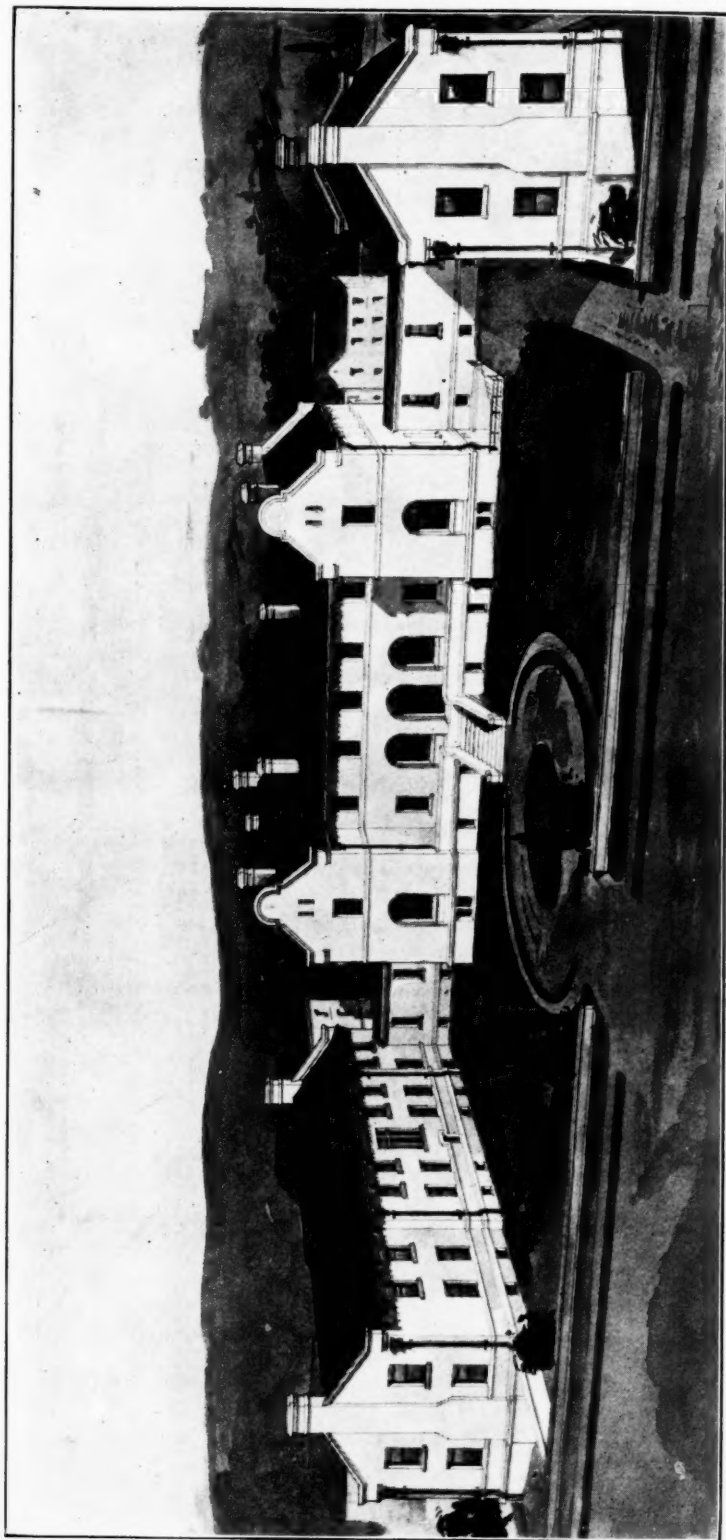




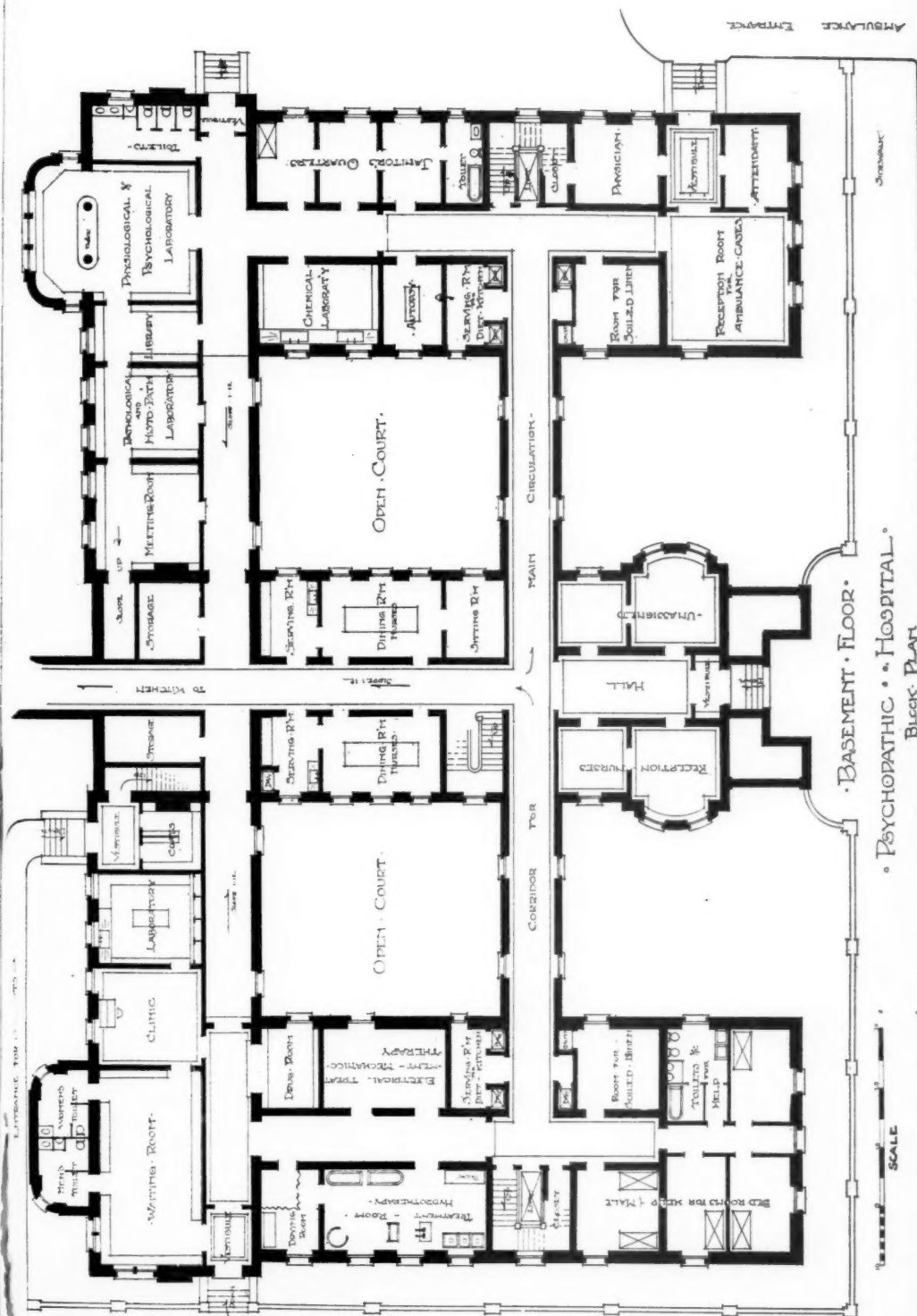
FIRST FLOOR PLAN. CONVALESCENT COTTAGE.

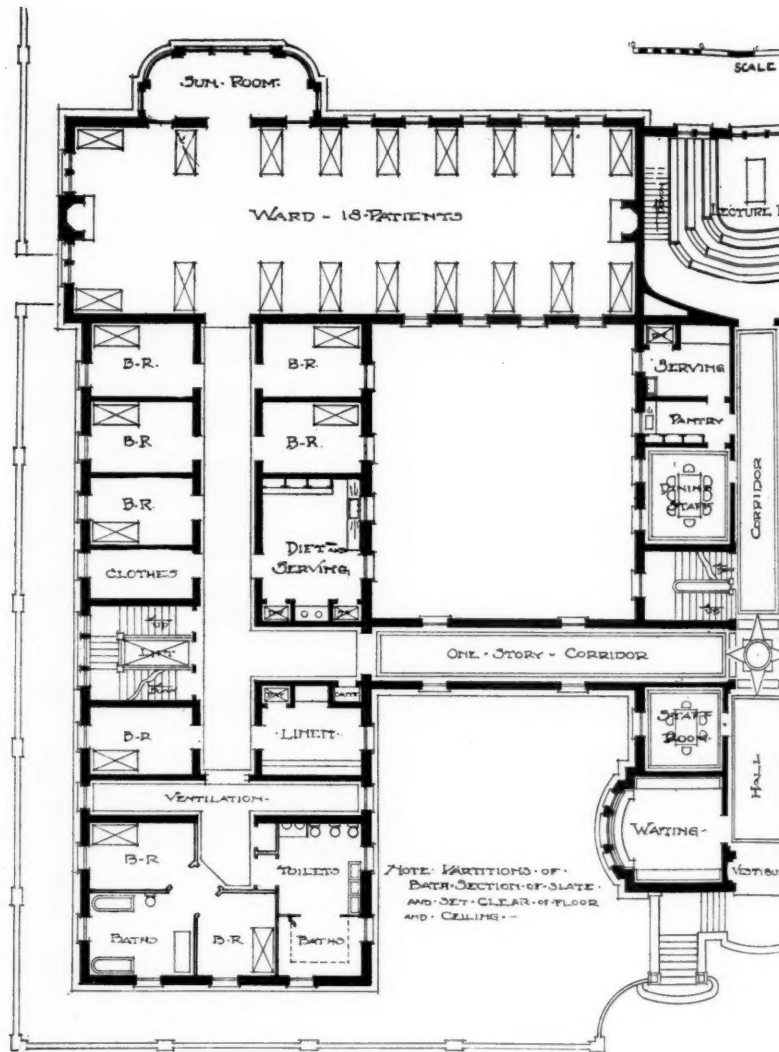


SECOND FLOOR PLAN, CONVALESCENT COTTAGE.



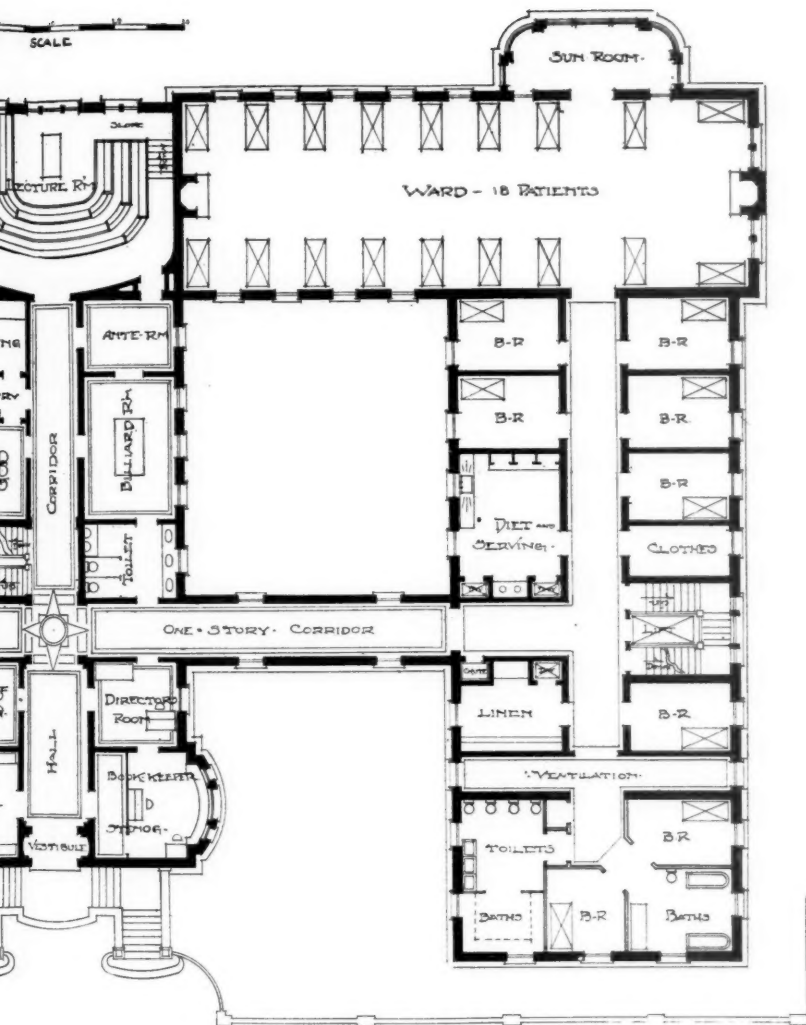
PERSPECTIVE VIEW.





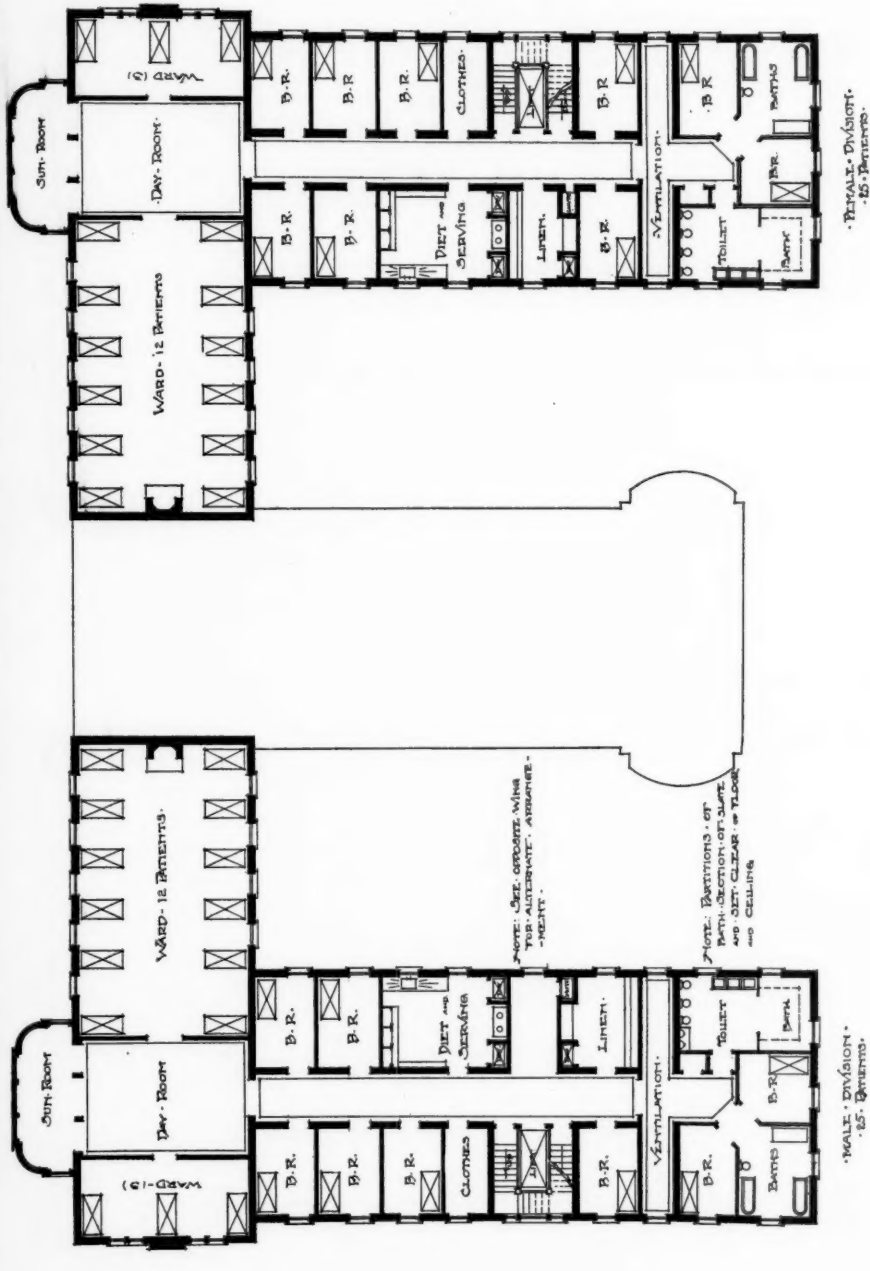
Reception ward for 25 male patients.

FIRST FLOOR, PSYCHOPATHIC  
NOTE.—Isolation wards on



OPATHIC HOSPITAL. BLOCK PLAN.  
wards on second floor similar.

Reception ward for 25 female patients.





A CASE OF SYPHILIS OF THE NERVOUS SYSTEM  
PRESENTING CLINICALLY AN AMNESTIC  
SYMPTOM COMPLEX, WITH AUTOPSY.

By EMMA W. MOOERS, M. D.

(From the Pathological Laboratory of the McLean Hospital.)

The patient was a man of good education, 40 years old. He was admitted September 9, 1899, and died January 24, 1901.

*Heredity.*—There was no psychopathic heredity. One sister was said to have died of "quick consumption," but no further history of tuberculosis could be obtained.

*Personal History.*—The patient has always been capable and physically strong. He had syphilis in 1888, as stated by a relative who is a physician. In 1894 he had a severe convulsion, for which there was no known cause, and there were no known after-effects. He was at work steadily until two years before admission. Since then he had to remain away from work at times, because he was "tired out," "nervous," and "had a poor appetite," but presented no other symptoms. From August, 1897, to the spring of 1898, large doses of iodide of potassium, alternating with bromide of mercury, were given him. His work was done sufficiently well so that he retained his position and responsibility. But gradually his memory is said to have become "a little dulled," so that he "hesitated" and occasionally "got foggy." Three months before admission his gait became "shaky," and a few weeks before admission he had a "sudden attack of dizziness, staggered and groped about like a drunken man." He was brought to this hospital because he presented certain symptoms which were thought to be an evidence of general paralysis, namely, a mild, good-natured euphoria, without, however, any expansiveness or extravagance, and a slight failure of memory.

From September, 1899, to May, 1900, the patient's state may be summarized as follows: He was in good physical condition,

slept and ate well, and was well nourished. His color was good, but the venules of the face and cheeks were somewhat dilated. The visceral examination showed no abnormality. The arteries were soft. No headache was present. The most striking feature was the abnormality of his gait. When made to walk a straight line he had a tendency to deviate, especially to the left, and when turning quickly he had to catch himself. This tendency to stagger towards the left side was frequently noted when he walked in the ward, and during the first few days he fell a few times when getting up from a sitting posture. There was at no time a feeling of dizziness. The gait was distinctly not ataxic, the legs were not raised unduly, and when lying down he described a circle with his foot without ataxia. This condition remained unaltered throughout this period. There was no swaying when standing on both feet with eyes closed, but a decided difficulty in standing on either foot alone. The reflexes were exaggerated, but equal. A transferred adductor reflex was noted when the inside of either knee was tapped; no ankle clonus; a few movements of a patellar clonus. Cremasteric and abdominal reflexes were present. The arms presented no abnormality; there was no tremor of the extended fingers. The face showed persistently a slight one-sidedness; the right angle of the mouth stood a little lower than the left, and the naso-labial fold on that side was a little flatter. The difference was also seen to a certain extent when he showed his teeth, but was not visible on forced motion. There was no tremor of the facial muscles. The tongue was protruded straight, and presented at first a slight, later a more marked, fibrillary tremor. The speech showed no abnormality. The eyes were freely movable in all directions. At an examination in April, 1900, a few rotatory nystagmus motions are noted, which are not mentioned before or after this note. The pupils were at times equal, at times differed in size, usually the right, later the left being larger. The right pupil always reacted to light less well than the left, but the accommodation reaction was normal. The fundus (examination in October, 1899, by Dr. Amadon) presented a slight palish blue color of the right disk. The handwriting showed no abnormality, and the patient wrote well to dictation. Hearing and vision were not

notably affected, although no special tests were applied. Sensation as to rough tests was normal.

The mental condition was only slightly abnormal. The patient showed a mild euphoria, a certain easy-going unconcern; he was unusually effusive, but not expansive. He showed no decided defect of judgment, no dulling of his finer feelings. His memory was not notably affected in a manner that could be demonstrated by any of the usual tests or by any forgetfulness of events from day to day, but the patient himself stated that in his work he had noticed that now and then he would forget things. He calculated fairly well; perhaps this was somewhat slow for his degree of education.

He was given much freedom, showed a tendency to occupy himself much, and worked a good deal in the wood-carving room, where he did good work, which needed some precision in drawing and carving.

This stable condition was interrupted in December, 1899, by a convulsion. He was found lying in his room, and presented convulsive movements of his left arm and leg. This lasted only a short time, and the patient remained drowsy for some hours, but the same evening he again appeared as well as before, and the physical condition was unaltered after that.

In May the patient complained of much nausea, especially in the morning, and frequently vomited on rising; this lasted for two weeks. He lost some flesh and began to look somewhat worn. He began to complain of a dull pain in the forehead and slept rather poorly. The physical signs, noted before, did not alter, however, except that the knee-jerks became rather more exaggerated, he staggered a little more at times, and his speech became somewhat thick, though he pronounced test sentences well, except for a certain thickness, just mentioned. His mental condition altered during this state inasmuch as he became somewhat irritable and fussy, but the change was slight, and in other respects he remained the same. The vomiting only existed for two weeks, and after that time the general physical state improved again. In June the physical signs underwent no further alterations, but mentally he became somewhat changed; he complained of feeling nervous and cried at times without appreciable reason.

On the 25th of June it was reported that the patient appeared confused, was lying down in a strange room, and seemed unable to speak. He was at once put to bed and had an attack in which the whole body is said to have become stiff; this was soon followed by another attack, both being of short duration. When seen after this he was semi-conscious, breathed heavily, the eyes were somewhat deviated, and did not react to light. The arms presented a peculiar lead-pipe resistance. The right side of the face was more relaxed than the left. (This had been the case before.) The patellar reflexes were very active, but there was no ankle clonus. No difference on the two sides. He vomited about twenty minutes after the attack. Soon another convulsion occurred; the eyes and head turned to the extreme left, the right arm and leg became stiff and raised; the extremities of the left side assumed the same position while the head turned back to the median line and became raised from the bed so that finally the patient only rested on the buttocks while the remainder of his body was raised in a tetanic spasm. Soon twitchings appeared and quick flexion and extension movements of body and extremities, while the head rotated from side to side. The whole attack lasted two minutes. After it the same lead pipe resistance was noted in the arms. He remained unconscious until the next day.

When seen on the afternoon of this day (June 26) he was conscious but somewhat dull, and said he felt sleepy. He answered questions quite readily, however. The feature which struck one at once was that he did not know the nurses and physicians and did not know where he was. The physical signs were not markedly altered; there were no signs of palsy about the extremities, the face was not more one-sided than it had been before, but the tongue deviated a little to the right, the grips were equal, and strength in the arms was good. The knee-jerks were rather less active than before, but there were on both sides a few movements of an ankle clonus. Pin-pricks were perceived on both sides equally well. But the striking alteration which the attack had left behind was a *left hemianopsia*. This was present on the next day, but could no longer be demonstrated five days later. Another striking feature noted at this time was that for some days he frequently spoke of red ants crawling about on the white sheet,

or of seeing red letters; and when the ice was brought to him, he would at first not take it because, he said, it was red.

*From the time of this convulsion his mental condition was entirely changed.* He was somewhat duller; above all, his memory for recent events was profoundly altered, so that he could not retain impressions for any length of time, while his memory for old events was less interfered with. He was consequently totally disoriented. To a certain extent he fabricated. But in spite of his confusion he retained his politeness, and in general there was no breaking up of the personality, such as one sees in general paralysis, for example. This condition remained essentially unaltered for the remaining seven months of his life, although certain variations were noted.

More in detail, his state was as follows: The patient was often quite alert, but his condition varied considerably in this respect, and at times he appeared quite dull, so that it was somewhat difficult to attract his attention. Often he was orderly enough and did as he was told and was tidy, but at times would urinate on the floor and mix up his food. He was never in any way excited. He remained, when more alert, uniformly polite, grateful for what was done for him, and jovial. He was very rarely irritable, but at times somewhat emotional.

From the very beginning, as was stated, he was disoriented and rarely had any idea where he was; sometimes he thought he was in a hotel, and wanted to be shown to the elevator, or said he was going to leave on the next train; again, he thought he was in a club, or on board ship, or in various towns, or in another hospital. It was noted that when asked where he was, he often gave different answers during the same visit. Thus on one occasion, when he stated that he was in A. and was told that he had been in the McLean Hospital for two years, he said with evident emotion, "You don't say so! I thought I could go to work to-morrow. I had no idea I was so bad;" but the next moment he said he was in M. and had come down "yesterday from K. after closing up the house there for the summer." While he always knew his people when they came, he did not know the physicians or nurses. A few times, however, he greeted the physicians as doctors, but had no idea what their names were; once, when his legs were examined, he said, "They are the same

old legs you have examined before," but he did not know the physician's name, nor when he had examined him before. Usually when one entered he greeted one with a jolly "Hallo, Bill," or "Hallo, Fred, it is awfully good of you to come," or, "Are you going to the house?" His time orientation was almost constantly very poor; he would ask for breakfast in the evening, or say it was 8 p. m. when it was morning; and after a visit of an hour, for example, said, when asked how long the physicians had been with him, "For four minutes." Frequently he seemed unable to retain an impression for even the shortest time, as has already been indicated above. Immediately after dinner he would ask if he was going to have something to eat soon; or after a visit he would have completely forgotten that anyone had been to see him, and when the physician re-entered his room a short time after the visit, he would again greet him as if he had not seen him, and call him again by a new name. Perhaps the most striking example occurred when his sister visited him one day. He happened to be restless and walked up and down the hall; every time he passed her and his eyes fell on her he greeted her effusively, saying that he was glad she had come, as he had not seen her for a long time. Or, on another occasion, he opened the window, and when told not to do so, he apologized and put it down; but when he again walked towards it, he again opened it, this being repeated a number of times.

To a slight extent he fabricated incidents, which, according to him, had happened lately. It has been stated above that he once said he had the day before been in K. closing up the house. Again, he talked about people who had seen him "yesterday," or spoke of having "worked hard yesterday," and consequently feeling out of sorts "to-day," or he told us he was sorry to go away, but had promised his brother he would see him before he went back, or spoke of the presidential party which had come here, and that we were at the president's electoral headquarters; or, one day when found in bed, he said he had just come down here to look at the place with Walter P., and finding it such a nice place he had turned in, etc., etc. But these fabrications were never elaborated nor extensive. His memory for old events was better. Thus, to give some samples, he was able to give the year and day of his birth, the place where he was born, where



he went to school, what college he went to, what business he had been in; or, for example, could give the direction he would take in going from the Union Station in Boston to the State House, although he was unable to give the names of the streets; but, to give some other examples, he gave only approximately the year of the Civil War; knew, however, who was President then, but not who followed him, etc. He calculated rather poorly when any thinking was involved, as was the case in subtraction. When given a paragraph to read he was unable to give the gist, but remembered a catch-word.

His physical state gradually underwent certain changes. He had a few short, very transient convulsions with general twitching, but these left no immediate sequelæ; it was also noted that at times he showed some twitching of his muscles while he was asleep. His gait became worse in August, 1900; he walked very poorly one day and fell a number of times; yet it again improved, still remained more tottering and uncertain than it had been, but the muscular strength was not interfered with; the reflexes were equal and decidedly exaggerated, and ankle clonus again appeared. Babinsky not mentioned. The innervation of his face did not change markedly; frequently it is noted that the right side of the face (lower facial branch) was somewhat less innervated than the left, but this was at no time marked and did not become more accentuated. The tongue deviated slightly to the right on several examinations. The speech became noticeably altered; it was slightly thicker after the attack on June 25th; a note of the latter part of November states that it had lately become decidedly thicker, so that the sibilants especially were pronounced poorly, but he repeated test phrases well with that exception. This did not further alter till his death. His pupils varied in size, sometimes one being larger than the other, and the light reaction became sluggish in the left also. His eyes always remained freely movable. Hemianopsia, often tested for, was not again observed. But the note of December 8th states that both visual fields appear contracted, there being, however, no difference between the two sides. The test was made by holding the hands up at the sides of the patient's head, while he was asked to grasp them; it was usually necessary to bring them further towards the median line than normally.

His hearing was interfered with. In the beginning of August it was for the first time found difficult to make him understand questions, and the watch was heard in contact only, but was heard more distinctly on the left than on the right side. He said, "I can't distinguish all you say unless I see your lips;" and this was verified by tests. Frequently he understood words which had a similar sound to the ones spoken. This difficulty in hearing was only marked to such an extent at a few visits in August, though he always retained a slight difficulty which varied somewhat in intensity.

In December he began to have some trouble in urinating; he seemed to have marked difficulty in starting the stream, but he never had retention. This remained unchanged to his death.

The general physical state was moderately good. He did not lose weight to any extent, but throughout the period from June to his death he had at times a few days during which he had frequent vomiting spells, and had to be kept on a restricted diet. He never complained of any headache. On the night of January 23d the patient had a series of convulsions with but short intervals. The head and eyes were deflected to the right, and the right side was especially affected. From 3.40 A. M. to 9 A. M., when they ceased, he had about 70 convulsions. When examined at 10 o'clock his patellar reflexes were rather uncertain, but on both sides an ankle clonus was present; the plantars were not very prompt. There was no difference in his limbs on the two sides. He remained unconscious but had no further convulsions, although during the night his body stiffened at intervals. He vomited a number of times. The temperature was elevated immediately after the convulsion; it rose further to  $106^{\circ}$ ; the respiration became rapid and finally rose to 50, and ceased at intervals for 10-30 seconds, though without the characteristic Cheyne-Stokes type. He died at 10.40 A. M. on the 24th of January. An undulation of the flexor longus hallucis of the left side was noted throughout his unconsciousness, and persisted for half an hour after death.

The *autopsy* showed some general thickening of the pia-arachnoid of the brain. This was more marked in some places at the base, especially the anterior perforated space and at the fissure of Sylvius, but no gummatous exudate was present. The



vessels at the base appeared somewhat thickened in places. The dura showed no abnormalities. The convolutions were broad and appeared rather flattened. Weight of the brain with cerebellum and pons 1450 grams. The upper part of the pons showed on its ventral side a slight bulging on the right, near the median line. The pia-arachnoid of the pons medulla and spinal cord was somewhat thickened. The dura of the cord appeared diffusely thickened.

On a posterior root of the third thoracic segment there was a small growth.

Nothing of note was found in the internal organs, except in the spleen, where a yellowish focus was seen, about 1 by 1 cm. This proved, on microscopic examination, to be made up of masses of cells enclosing necrotic areas. In the immediate vicinity of this latter epithelioid cells are found in large numbers. Giant cells are both numerous and large. A fair number of lymphoid cells are grouped irregularly outside of the layer of epithelioid cells; in some foci these cells are few. The tissue is not very vascular.

Before the extent of the lesion at the base was known (owing to the absence of a marked exudate) the brain was cut for other purposes in a manner which later made the reconstruction somewhat difficult. A horizontal section was made through the hemispheres at the level indicated by Fig. 1. The base was then treated in the following manner: Two parallel horizontal sections, each about 3 mm. thick, were removed (then with the idea of studying possible Marchi degeneration), while the rest of the base was divided by a vertical cut through the peduncles; here also two pieces were taken, each 3 mm. thick. The upper part was cut into three portions by sagittal sections. All these pieces were then cut into serial sections, and a fair number stained and examined. They were stained with hæmatoxylin, and counter-stained with acid-fuchsin, eosin, or by Van Gieson's method, also with Pal's modification of Weigert's myeline-sheath stain. In the thick pieces, however, the results with the last method were unreliable, because the brain had not been prepared with a view to making large sections.

Upon microscopic examination of a large number of sections, the following conditions were found: The meninges at the base,

especially in the deep fissures and sulci, show marked infiltration with various forms of lymphoid cells. The infiltrated membrane often fuses with the brain substance, so that in many places no dividing line can be seen. Frequently, as will be further described, certain focal lesions of various sizes are noted. The blood-vessels, except those at the convexity, show in many places marked alteration. The intima, media and adventitia are deeply infiltrated, in most arteries, with lymphoid, endothelial and plasma cells. Small focal lesions, similar to those before mentioned, are not infrequently seen in the adventitia. The media is less affected, as a rule, than the other coats, but it frequently shows a thickening and moderate infiltration. The intima shows many stages of proliferation, from a moderate increase in the endothelial cells to a typical endarteritis obliterans. In a number of places two or even three layers of elastic membrane are seen, as has been repeatedly described (see, for example, the illustration in Nonne's book). The veins also show similar changes, but this is noticeable to a greater extent in the spinal cord than in the brain.

Thin sections from the various focal lesions referred to above were examined, and all show essentially the same histological structure, viz.: masses of very cellular tissue enclosing foci of necrotic material. The cells making up the main masses consist of the various cells which may be found in granulation tissue and in lymphadenoid tissue. Interspersed among the cells are a large number of capillary blood vessels.

The necrotic areas are generally seen to be bordered by elongated cells with vesicular nuclei and indefinite protoplasm (epithelioid cells). Giant cells are occasionally found. In brief, the focal lesions have the general appearance of masses of granulation tissue undergoing necrosis, and have a structure which might be that of a gumma or a neoplasm due to tuberculosis, as we know of no purely histological criteria for distinguishing with certainty between the two diseases.

The following points in harmony with the present teachings seem to indicate that the lesions in this case are due to syphilis rather than to tuberculosis:

1. The presence of granulomatous new growths in the spinal meninges and especially about the roots of certain spinal nerves. Tuberculosis of the spinal meninges does not usually produce

such neoplasms. 2. The age of the individual, tuberculosis of the nervous system being much more common in childhood and youth. 3. The existence of extensive sclerotic lesions in the vessels of the brain and cord. 4. The failure to find tubercle bacilli in any of the lesions, although they were carefully sought for. This negative result is qualified by the fact that the tissue had been hardened in Müller's fluid, which is unfavorable to the demonstration of tubercle bacilli. 5. The history of syphilis. 6. The extent and intensity of the lesion.

In the brain tissue adjacent to these focal lesions, there is a well-marked increase in the neuroglia cells, some of which attain huge size. There is a replacement of brain substance in some regions by a spongy-looking tissue consisting of heavy bands of fibres, and, not numerous, but only loosely distributed among them, huge glia cells.

The location of the main lesions in the nervous system is, briefly, as follows (the illustrations will supplement the description): Beginning at the base in the *right* hemisphere, we find the vessels and pia in the anterior perforated space markedly affected, and from there the infiltration extends upward, evidently, with the blood vessels into the caudate and lenticular nuclei. From the fissure of Sylvius the temporal lobe is involved. From the pia between the temporal lobe and the peduncle there is an extension into the cornu Ammonis and the peduncle. The thalamus is the seat of several foci. One barely invades the external geniculate, another to a slight extent the internal geniculate body. The pulvinar shows marked involvement; the region of the red nucleus is somewhat infiltrated. A large focus is found in the splenium of the corpus callosum. Some of the convolutions on the inner surface of the brain are much invaded, notably the hippocampal gyrus.

In the *left* hemisphere there is less of an involvement. The most important gumma is that in the peduncle. Small foci are found in the frontal and temporal lobes, again in the hippocampal gyrus, and to a very slight extent in the tissue in the neighborhood of the fissures of the occipital lobe.

The optic chiasm is somewhat involved, and in the vertical sections through the peduncle some degeneration is found in the optic nerves with Marchi's method.

The convexity is remarkably free from alteration except for

diffuse changes in the myelin fibers and the glia. The myelin fibers, especially the tangential, seem somewhat diminished throughout; in the sections from the first frontal convolutions this diminution is very decided.

The glia layer at the surface of the cortex is distinctly thickened in places. In the first frontal convolution and the paracentral lobule this is very marked. Moreover, the fibers which constitute this layer and those which pass down into the cortex are uncommonly coarse; the glia cell-bodies enlarged (see microphotograph). Enlarged glia cell-bodies are seen in the region representing the transition between cortex and white matter. There are, therefore, very decided diffuse alterations in the cortex of the convexity of the anterior portions of the brain. But in spite of these changes, which might perhaps suggest a beginning of general paralysis, there is nowhere to be seen any alteration of the blood vessels, notably no accumulation of cells in the adventitial spaces, and the general normal arrangement of the nerve-cells, as seen in many Nissl preparations, appears not at all disturbed.

The internal structure of the nerve cells presents throughout the cortex decided changes. The greater number of the cells have undergone the typical fever alteration, which is now so well known that it need not be described. In the second layer, especially, are seen many typical illustrations of the alteration described by Hoch as "shrinkage." Cells which answer to this description are often found in deeper layers, though they are paler, and the meshes of the honeycomb are not as clear and sharp as is commonly seen. While these two alterations are well known, other cells are seen which are more difficult to interpret; cells among the medium-sized and larger pyramids, which have a homogeneous nucleus with more or less uneven outline. There are transitions from these nuclei to those of the cells described as "shrinkage." But the cell body presents the characters of the fever alteration, though it is apt to be more ragged. The nucleoli are not altered, except in very isolated cells. The question, of course, arises whether the cell changes described last have to be regarded as an integral part of the diseased process, perhaps as an expression of the last flaring up, which clinically manifested itself in convulsions, unconsciousness and death. The experience in this laboratory with a large number of cortex specimens from the

autopsies of the most heterogeneous general hospital cases seems to show that similar changes are not very uncommon, and that they are found, as in the case here, where the "shrinkage" and fever alterations occur together. It is not unlikely that they are due to the combined effect of the two influences, the fever and the influence which produces the shrinkage. What this latter influence is we do not know definitely. But our experience has taught us that the alteration is most marked in cases with chronic passive congestion; and for this reason it has been suggested that it may be due to an abnormal fluid content of the tissue on the one hand, and to the physical action of the alcohol used in hardening on the other.

In the *pons* the bulging which was noted at the autopsy proved to be a focal lesion 6-10 mm. in diameter. It was situated in the ventral part of the *pons*; extending from about the region of the exit of the fourth nerve upward to the *crura*, it involved to a certain extent the region of the right pyramid and of the fronto-pontine tracts; but it also passed somewhat over the median line into the region of the left pyramid. Another focal lesion, 6 mm. in its greatest diameter, was found in the lateral part of the fourth ventricle, on the right side. It was largest at the level of the seventh. It interferes somewhat with the ascending eighth, Deiter's nucleus and the restiform body, especially the inner portion of the latter. It does not interfere with the superior cerebellar peduncle. This focus is almost entirely made up of necrotic tissue. In the medulla there are no foci, nor have there been any lesions noted on thin microscopic sections of the cerebellum.

The membranes over the *pons medulla* show in places marked thickening and infiltration of the nature above described. Some of the cranial nerves are slightly infiltrated. Besides the optic, above mentioned, it is especially the eighth that presents some degeneration.

In the upper *pons* the left superior cerebellar peduncle shows some diffuse degeneration both with the Pal and Marchi stain. The right pyramid below the lesion above mentioned shows marked degeneration, especially in its ventral and mesial portions; a similar, slighter and smaller degeneration is seen in the pyramid of the opposite side. This also shows diffuse degeneration (Pal and Marchi). In the medulla it is clear that both pyra-

mids are diffusely degenerated, but the degeneration of the right side is more marked. It will be seen later that in the cord there is no difference noticed between the two sides.

In the cord, the dura is evenly thickened, the pia-arachnoid irregularly infiltrated with cells, and thickened; small focal lesions are at times seen near the margin of the cord of the cervical and thoracic region. Some of the arteries are affected similarly to those in the brain, but the process is less intense. The veins, however, show greater alterations; they are deeply infiltrated, and present in many places small focal lesions in the adventitia. Sometimes this infiltration seems to extend into the periphery of the cord, but there is nowhere any infiltrative lesion in the cord. The nerve roots frequently show slight infiltration, but the fifth ventral cervical root presents a neoplasm, so that a large part of the root is totally destroyed. Lower down in the cord, beginning at the fifth lumbar, and especially at the first sacral, and extending with diminishing intensity down to the fourth sacral, is seen a very marked degeneration of the ventral nerve-roots. There is here a peculiar hyaline, glassy-looking tissue which without interruption extends into the nerve-roots, pia-arachnoid and ventral portion of the spinal cord (on one side nearly up to the ventral horn), so that the dividing lines are absolutely obliterated. It is a tissue with few nuclei. This same glassy-looking substance is also seen in other parts of the cord, partly around blood vessels or in the vicinity of septa, and extending more or less extensively and irregularly into the white matter; in the latter the substance, which is illustrated in the micro-photograph (Fig. XIII), looks like a hyaline mass in which holes have been irregularly punched for a few myelin fibers. This is the case in some places in the cervical cord. In the portion of the sacral cord referred to, there is a total disappearance of myelin fibers, and the normal tissue seems totally replaced by this substance. The same punched-out appearance is seen, however, in some of the nerve-roots adjoining the sacral cord. At the levels where the ventral roots are interfered with there is a decided loss or shrinking of the ventral horn-cells.

At all levels of the spinal cord there is a marked marginal sclerosis, which usually has a fibrillary appearance, but in places approaches the hyaline look, as described.



On the right dorsal root of the third thoracic segment between the dura and the cord was found a distinct mass, 6 x 3 mm., enveloping most of the fibers. Upon serial sections the nerve roots were found to be markedly degenerated within this growth, the myelin having quite disappeared from many fibers. The roots next the cord showed much degeneration, but those next the dura were also slightly degenerated. The growth proved to be a very vascular neoplasm, containing necrotic areas similar to those described in the brain, but showing more young connective tissue with cells having faintly stained oval nuclei and branching bodies. The reticulum was very dense in places; phagocytes, containing myelin particles, were numerous; only an occasional leucocyte was seen.

In a few places there are small, irregular areas of degeneration without infiltration (*fleckförmige Degeneration*.) The largest focus of this kind is in the third dorsal segment; a more diffuse, slighter degeneration is seen in the region of the tenth dorsal segment. They are both in the posterior columns.

Secondary degenerations are found in the cord throughout the pyramidal tracts, which are markedly altered, but, as has been said, there is no decided difference between the two sides. There are also secondary degenerations due to the thoracic-root lesion and the focus in the third dorsal segment, but a description of these is reserved for further study.

In a case in which the lesions are so extensive and of such long duration, the correlation of individual symptoms and anatomical findings would seem somewhat problematical. Nevertheless, this is clearly only the case in regard to some of the clinical manifestations.

The disorder of the gait as it appeared in the latter part of the course and its association with increase of the patellar reflexes was evidently due to the existence of the focus in the peduncle of the left and the focus in the pons of the right side, which latter also involved somewhat the left pyramid.

The staggering (cerebellar) gait, which was one of the first symptoms, is more difficult to refer to a definite anatomical cause, but we have seen that the cerebellar connections have been variously disturbed.

The interference with the bladder may fairly be referred to the lesion noted in the sacral cord.

The transient left-sided hemianopsia was probably due to the involvement of the right pulvinar. It will be remembered that the external geniculate body is barely affected. The final narrowing of the visual field, on the other hand, may find its explanation in the affection of the optic nerves. As a cause of the defect in hearing we have noted an infiltration of the eighth nerve (and on one side at least the internal geniculate body is somewhat implicated).

It seems scarcely justifiable to speculate on the anatomical correlate of the mental symptoms. In this respect we may, however, state that the acute onset of the defect and the unaltered persistence certainly argue against a dependence of the mental symptoms on the diffuse alterations in the brain cortex, and point more to the characteristic syphilitic lesions.

In looking back over the case, we find that the general anatomical features in themselves present no special variations from the cases described, but it seemed of interest to follow up the lesions in serial brain sections in order to show their extent and distribution, notably their relation to the blood vessels and meninges in places, also the extent of interference with the various regions above mentioned, by which an explanation of some at least of the symptoms was possible.

Moreover, it seemed important to put on record the extent of the lesions in the brain, owing to the interesting mental picture, in spite of the fact that we cannot correlate the two. This mental picture resembled the symptom-complex found in Korsakow's disease.

As differing from the anatomical findings we would, however, call attention especially to the peculiar hyaline, glassy-looking substance, which resembles very closely the appearance which Dercum and Spiller have described lately, and to which they refer as the colloid infiltration of Obersteiner.

Finally, a feature of importance in this case is the diffuse degeneration and glia increase in the brain cortex, not dependent on any of the focal lesions or on any meningeal or vascular involvement. More and more has it been found that syphilis, besides giving rise to vascular and meningeal changes and to the devel-



opment of granulomata in the nervous system, may also be associated with diffuse degenerations. This is especially true in reference to the cord, for in the brain it has rarely been described (see Haenel's case).

I am greatly indebted to Dr. August Hoch for his direction of this work; also for the drawings of the brain sections.

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#### DESCRIPTION OF ILLUSTRATIONS.

FIGS. I-V.—Drawings of sections through left hemisphere.

FIGS. VI-XI.—Drawings of sections through right hemisphere. *C. N.*, Caudate Nucleus; *F. S.*, Fissure of Sylvius; *I. C.*, Internal Capsule (posterior limb); *P.*, Pulvinar; *C. G. E.*, External Geniculate Body; *Th.*, Thalamus; *C. G. I.*, Internal Geniculate Body; *P. P.*, Pes Pedunculi; *O. N.*, Optic Nerve; *T. L.*, Temporal Lobe; *Ped.*, Peduncle; *L. N.*, Lenticular Nucleus; *G. H.*, Gyrus Hippocampi; *C. C.*, Corpus Callosum; *A. P. S.*, Anterior Perforated Space; *R. N.*, Red Nucleus. The different areas are indicated by groups of dots.

FIG. XII.—Microphotograph of section of cord at the level of 5th lumbar root, showing the hyaline appearance in ventral portion of cord, pia-arachnoid and ventral roots.

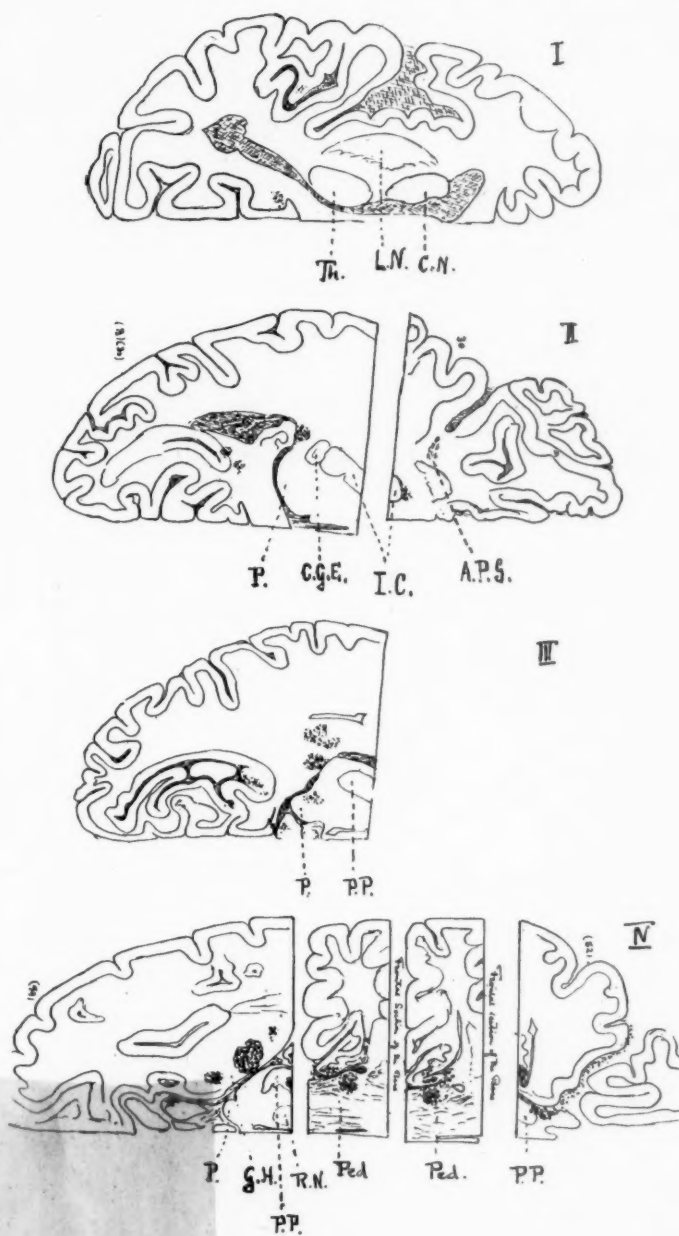
FIG. XIII.—Microphotograph showing the hyaline-looking substance in the white matter of the cord (cervical region).

FIG. XIV.—Microphotograph of artery (medulla), showing infiltration of the adventitia, thickening of the media, several layers of the elastica, and proliferation of the intima.

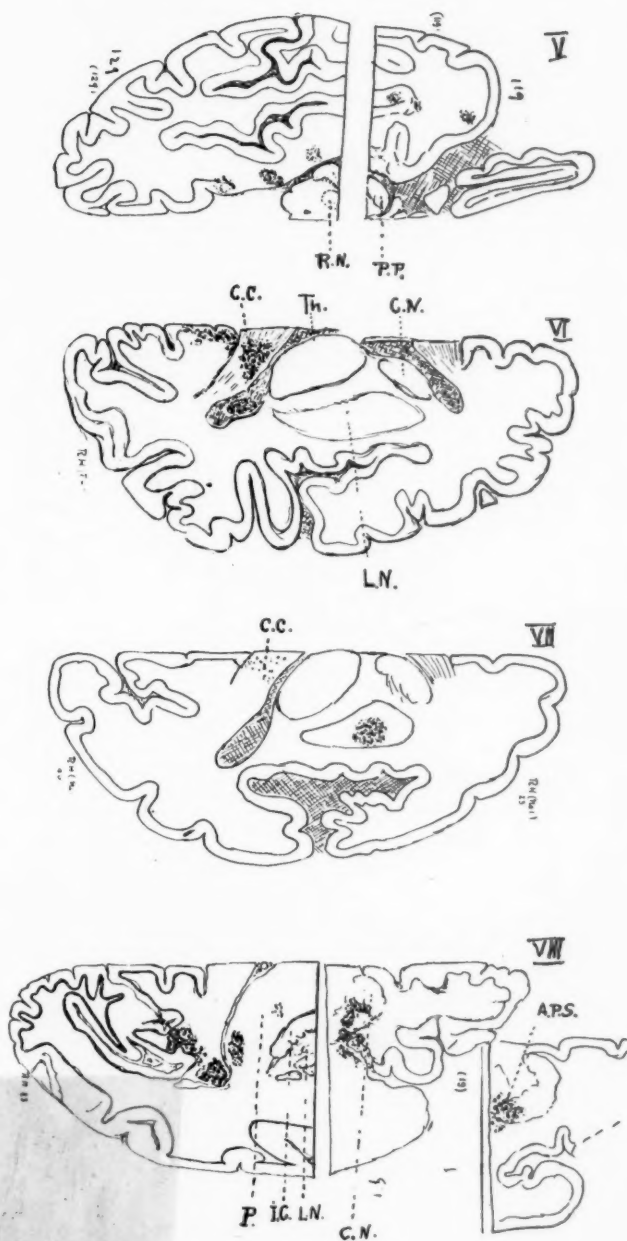
FIG. XV.—Microphotograph of the wall of a vein, showing separation of the laminae by infiltration with cells.

FIG. XVI.—Microphotograph showing obliterated vessel.

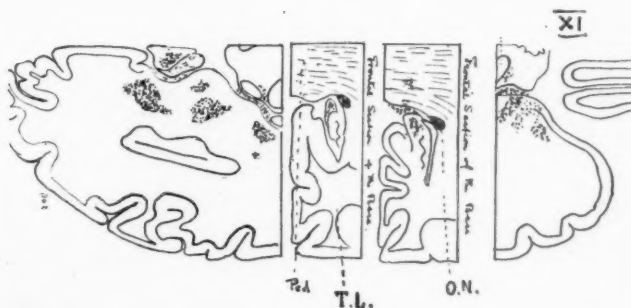
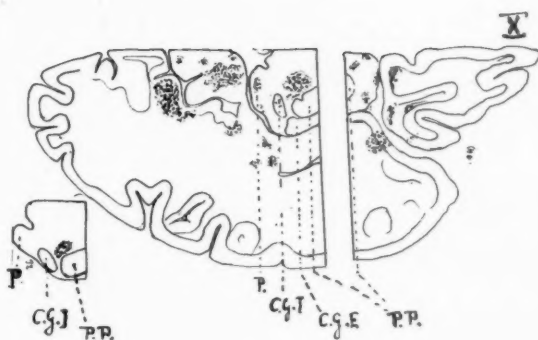
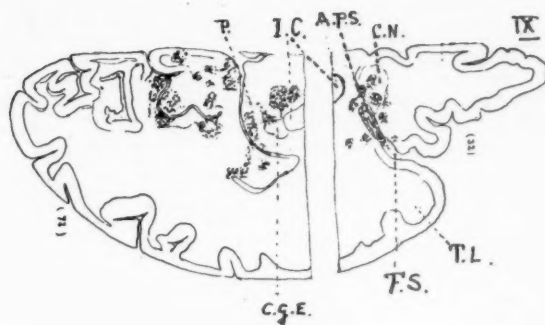
FIG. XVII.—Microphotograph showing increase of glia in the superficial layer of the cortex. (Benda stain; paracentral lobule.)

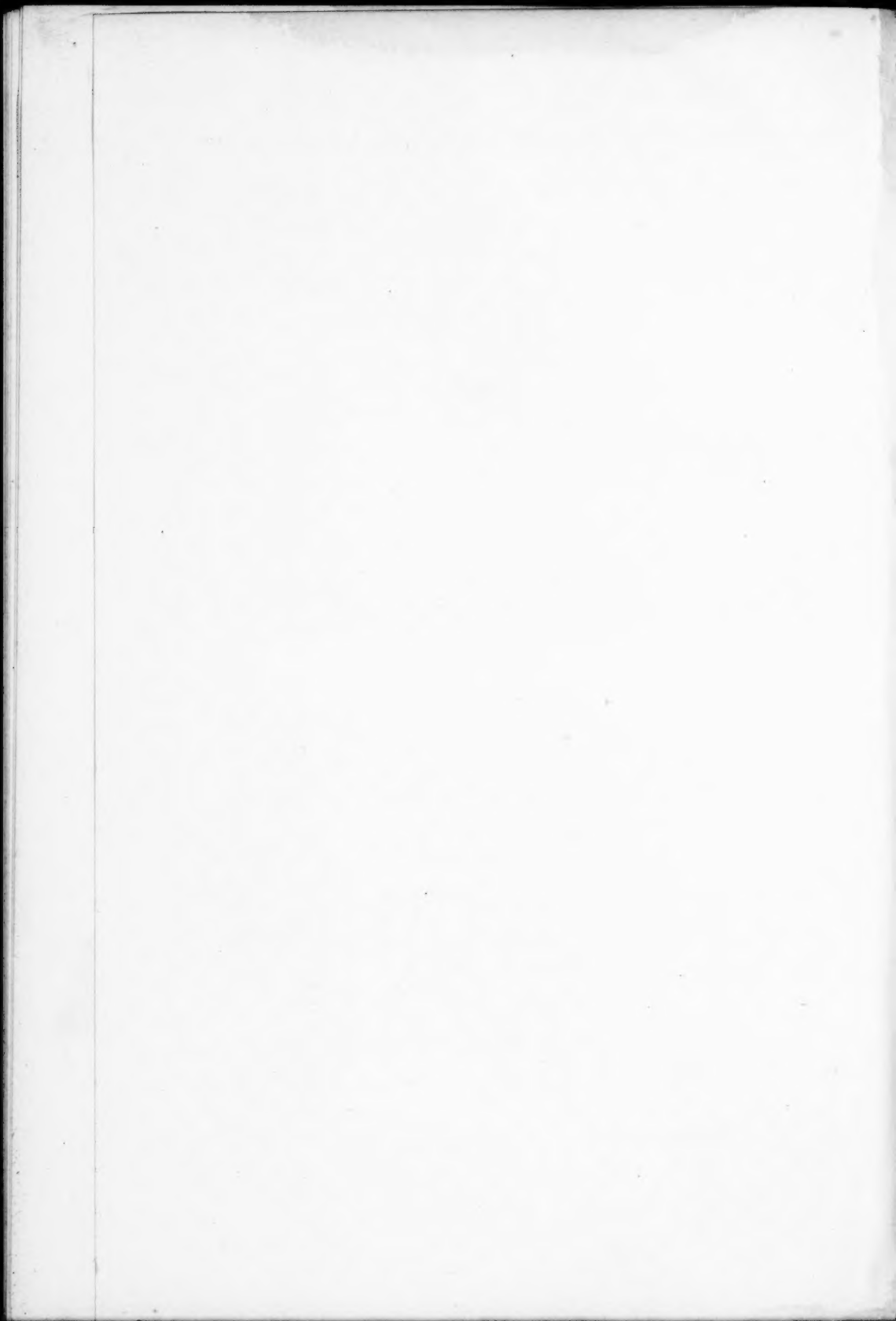














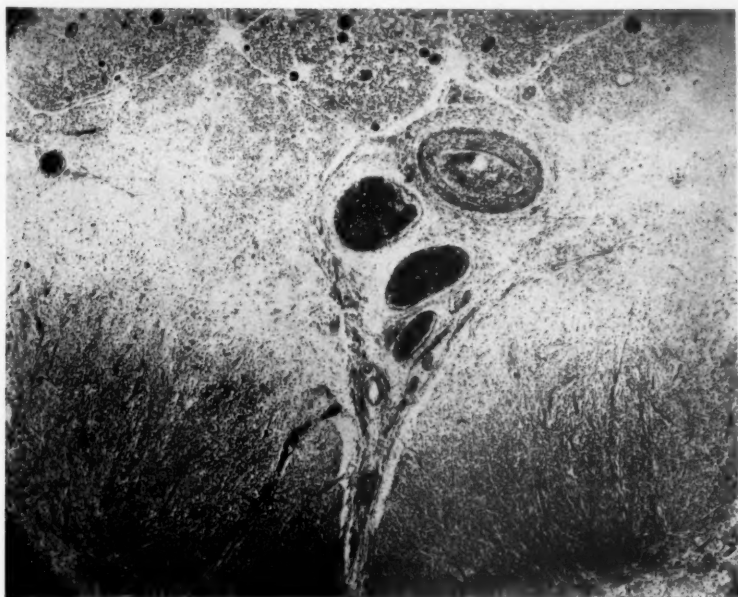


FIG. 12.

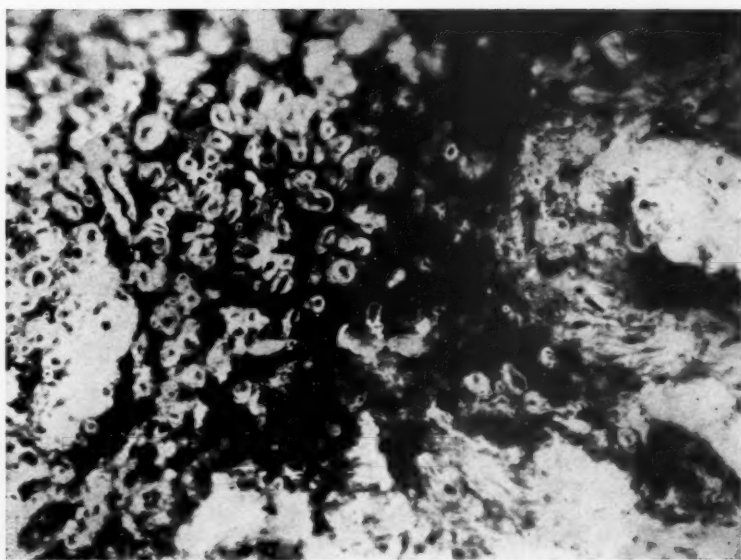
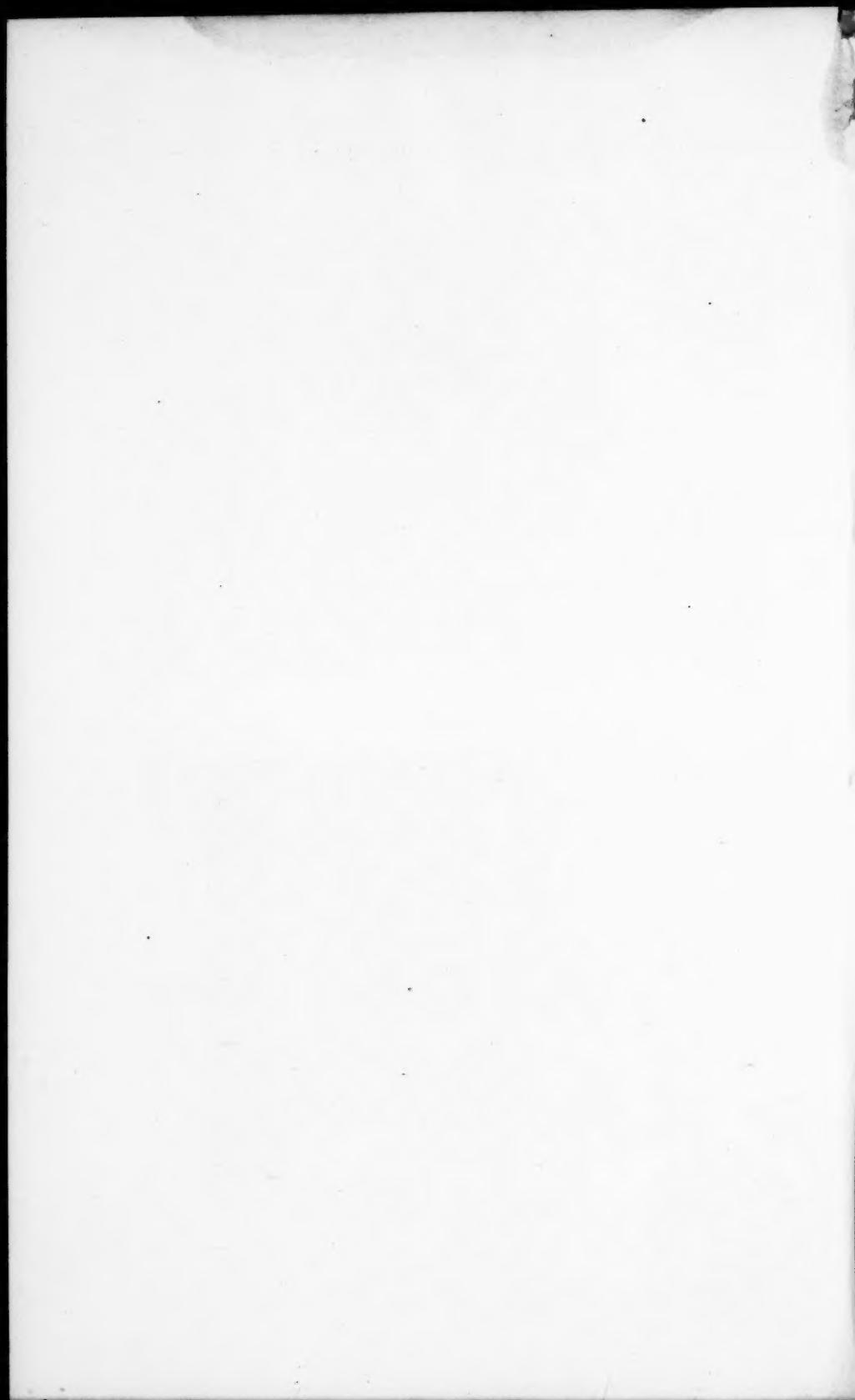


FIG 13



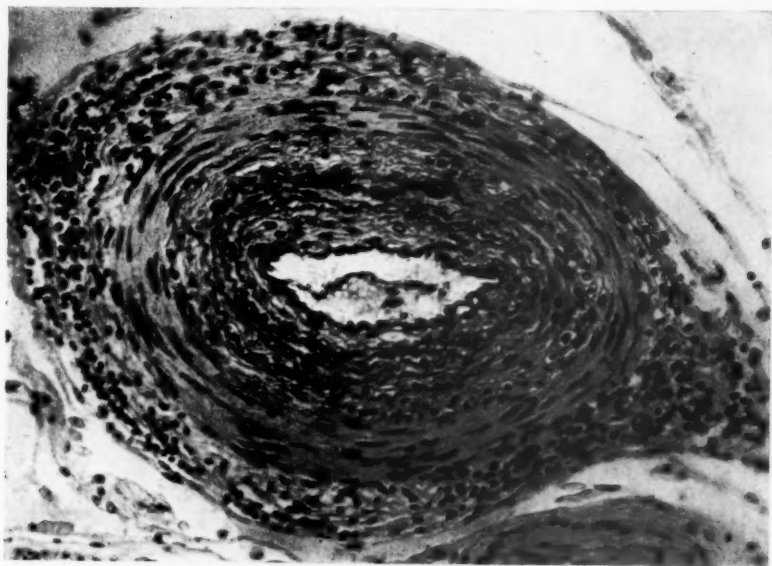


FIG. 14.

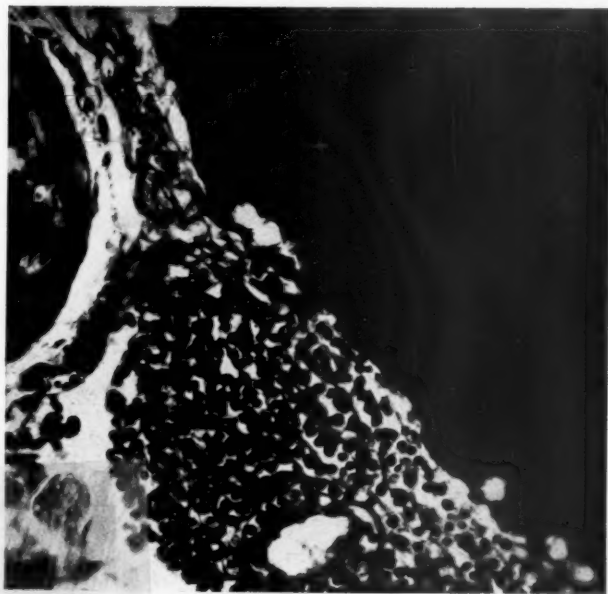


FIG. 15.



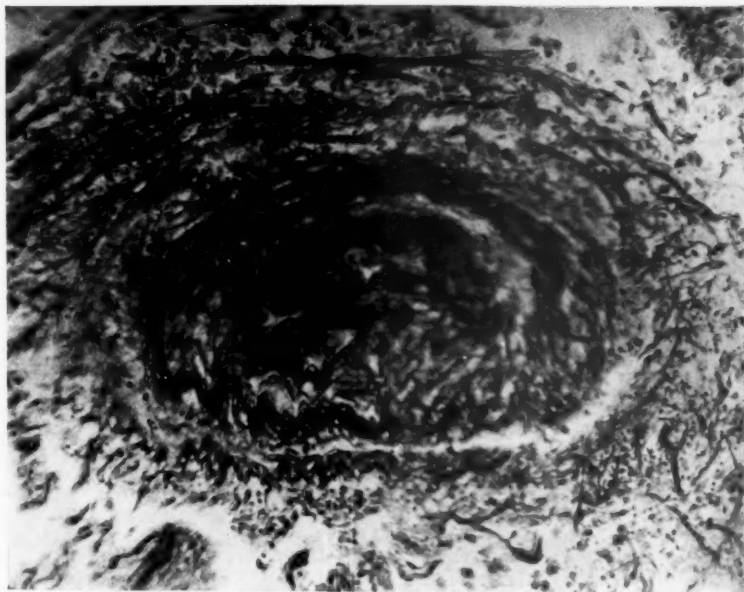


FIG. 16.

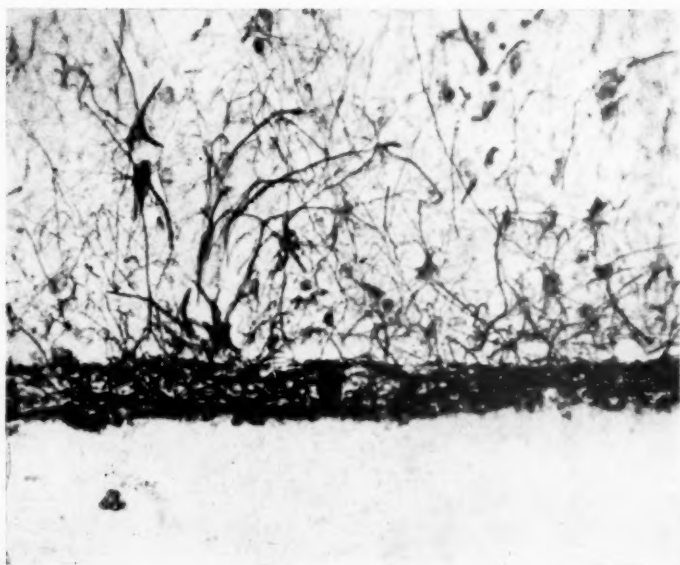
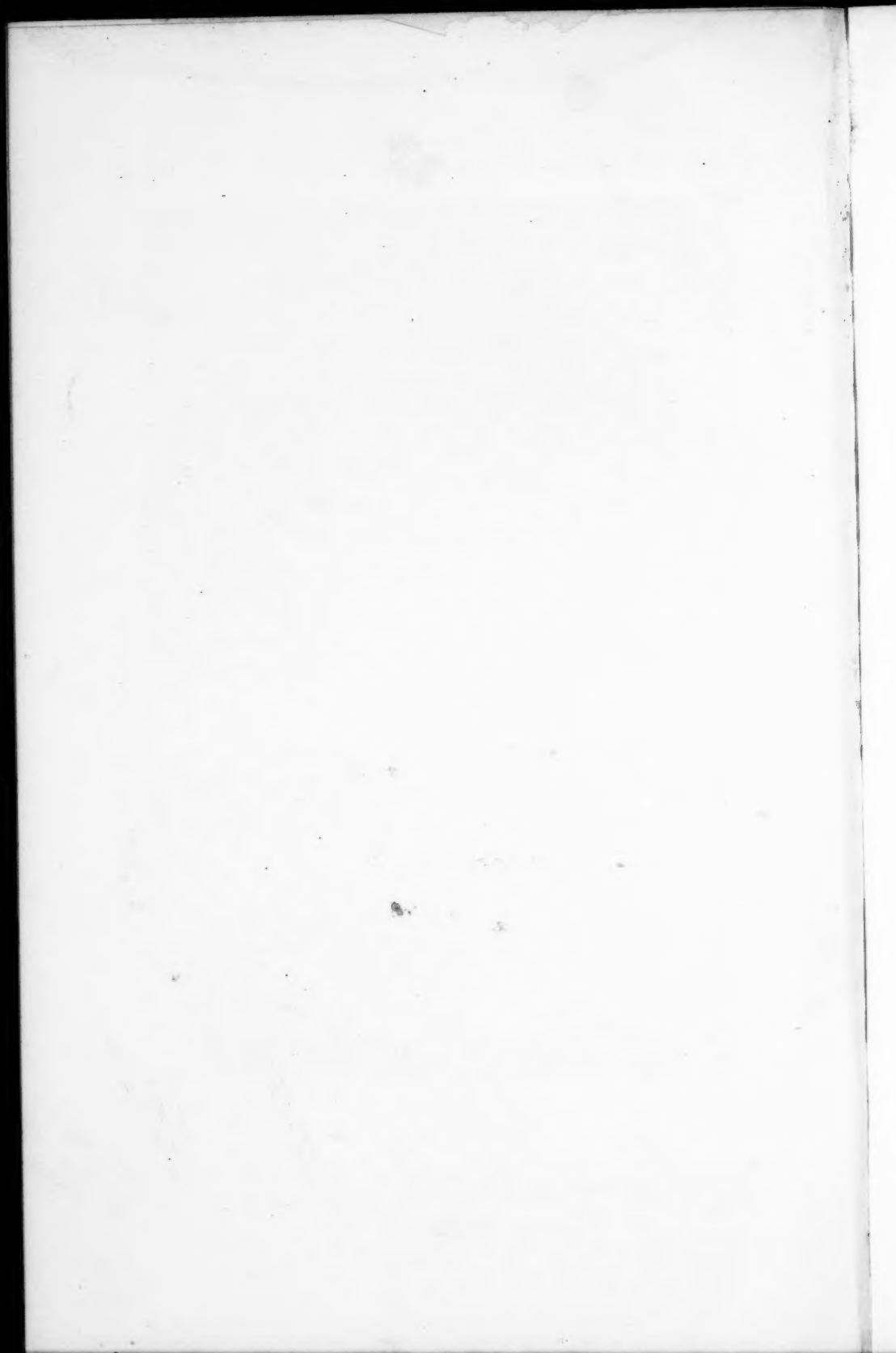


FIG. 17.



A MEDICO-LEGAL CASE OF WELL-POISONING, WITH  
A PLEA FOR A HOSPITAL-OBSERVATION  
LAW.

By HENRY R. STEDMAN, M. D.,

*Brookline, Mass.*

Although this case has a certain interest of its own, it is chiefly important as exemplifying the difficulties that are sometimes encountered in examining a person's mental condition and the need there is of further legal safeguards to insure accurate medical decisions in obscure cases.

The writer was called upon by the District Attorney, to examine and make report, in conjunction with Dr. G. F. Jelly, with reference to the sanity or insanity of P. H. C., charged with poisoning a well with intent to cause the death of Mrs. S. T. Both the prosecution and defence agreed to abide by our decision.

The following evidence was furnished by the prosecution:

"On Monday, Sept. 29th, 1902, complaint was made to the police that the well of F. B., in the town of A., had been discovered to have a substance in it which resembled poison. As much as could be collected was analyzed and found to contain sugar of lead. C., who was at that time working in Worcester, was found to have left there Saturday afternoon, passing through South Framingham, where he purchased a large quantity of sugar of lead, saying that he wanted it for use on horses. He arrived at A. Saturday night, appeared at the house of his brother early Sunday morning and left some time Sunday. Living at the house of Mr. B. is his sister, Mrs. T. to whom C.'s mother had left \$2400 several years ago in trust for C.'s children. C. has a number of times demanded that he should have charge of the money. There have been many disputes between C. and Mrs. T. over it, and he once said to her, "This matter may end in a tragedy." Sufficient reason being found, the police arrested P. C. on Oct. 7th. He said that he went to A. Sept. 27th to get his trunk. The well in which the poison was found was an old one, from which the water was pumped into the house, and it was the peculiar milky appearance of the water that came into the house that caused the investigation of the well and its surroundings. Considerable white

powder was scattered on the stones inside the well and on the curb, and the water appeared of a whitish color.

"C. is a machinist by trade, a widower, 57 years old, six feet tall, and a powerful man. He was at one time principal of a high school.

"He was enlisted during the Civil War, but deserted and went by the name of Claude Beverly for some time. His family are very much afraid of him, and his brother says he would not dare to go into the house alone with him. If not insane he is apparently a dangerous man. The Commonwealth does not admit the person's insanity and is inclined to think it merely a case of deep hatred and determination to have his own way in regard to the money."

The evidence for the defence was gathered by ourselves and appears in our report which is here given as submitted, except for a few unimportant changes:

"The prisoner is a well-educated, intelligent man, who tells his story in an apparently straightforward, consistent manner, with no attempt at concealment of anything that will not actually incriminate him. He acknowledges freely that he had often tried to alarm Mrs. T., into relinquishing the trusteeship of a sum of money left for his children. At one time he carried a revolver, which he intended to use upon himself, in the belief that when Mrs. T. found that her refusal had driven him to take his life her remorse would lead her to give up the trust. It was suicide that he had in mind also, when he warned her that her conduct "might lead to a tragedy."

His grievance against her is of long standing. According to the statement of his council, C. consulted him more than two years ago representing that Mrs. T., a second cousin, had had \$2400 placed in her hands by his mother to be used for the benefit of his children, and he thought that he, their appointed guardian, should have custody of this money.

He showed intense feeling when discussing that phase of the case, and more excitement at each succeeding interview. He admitted that the trustee was honest and had not misapplied the money, although none of the funds had been used. He had never told her the children's needs or demanded money for them "because he had too much pride." He was told that it was too small an affair for him to be so disturbed about and that the judge of probate would never consent to appoint him his children's trustee while he was their guardian, a fact of which it was most



difficult to convince him. Although urged to approach her as a father should for the sake of his children, he repeatedly insisted that he would never ask her for a cent. His manner of talking and acting at that time seemed to Mr. R. unusual and not exactly normal. When a third person was suggested for trustee in her place he would reiterate, "I want no one but myself to be the trustee." He was very angry over remarks made by Mrs. T., that he could not take proper care of his children, and had many disputes with her. Mr. R. could see no adequate cause for his intense feeling in the matter. C. finally became dissatisfied and took the case out of his hands.

Mrs. T. states that she offered him \$50 of the money at one time, for the children, and later \$200. He refused it and demanded the entire amount that was in her keeping. She told him plainly that she would give him money from time to time, without question, whenever he said that the children needed it. She was afraid that in his avarice he might deprive them of it unless the children's wants were specified. He did not directly threaten her but told a neighbor that if she knew what was in store for her "she would drop the trust like a red-hot poker." Her brother had often talked over the possibility of having him sent to an asylum, as they had all become afraid that he would kill someone or burn the house, but their dread of him prevented this. They all thought him insane.

A medical practitioner in good standing who is a relative and friend of the prisoner, never saw any tendency in him to mental disease until after the T. affair had come up. He brooded and fretted over it, talking continually of his grievance. He lost his appetite and sleep, and the expression of his eyes changed. This physician became so concerned about him that he twice wrote warning letters to Mrs. T., and consulted with C.'s brother and others on the advisability of having him committed to a hospital for the insane.

A connection by marriage reports that he was always grasping and avaricious, allowing his desire to get and to keep to carry him to great lengths. Money questions always aroused an element in him that she had never seen in anyone else. He once consented to having her ask Mrs. T. for money for the children but withdrew his permission immediately afterwards. He was always very emo-

tional and high-tempered. He once threatened to strike with a chair a woman with whom he had some difference about money. He is very impatient and cruel with animals, so much so that his wife had said that she could not live on the ranch with him. He had a high opinion of his own worth and felt that he was not properly appreciated. He was most fond of his children and they of him, but had been inclined to neglect them at times. When himself, he was agreeable and fairly easy to get along with much of the time. Shortly before his arrest his son, a lad of 17 now living with her, was greatly disturbed over his father's condition and thought that something was wrong with his mind. C.'s brother testified at the inquest that he talked about his wrongs at Mrs. T.'s hands day and night.

Measurements of the prisoner's cranium, by Dr. H. W. Miller, pathologist of Taunton Insane Hospital, show in one direction marked divergence from the normal skull. (See table.)

The statements of the prisoner which bear upon his mental organization and condition are as follows:

His mother married a first cousin. They quarrelled constantly and she finally left him forever. Later, she placed money that she had saved into the hands of a man who misappropriated it, and in the quarrel which arose in consequence she shot and killed him. For this crime she served a sentence of seven years in the State Prison for manslaughter. At the time of the famous Lizzie Borden trial and in consequence of brooding over it, she became mentally upset for a time. She was afraid that P. C. would kill her as (she believed) the girl had killed her parents, and had her door barricaded. In reality she had confidence in and affection for him, and he shows letters of hers which put this beyond question. She would also sit in the barn all night with a gun in her hands, on the watch lest someone should burn down her house. Many years before, one of his brothers, whom he stigmatizes as a "degenerate," a dissolute, worthless fellow, had burned down the house in which he had an interest, for the insurance money. Another brother disappeared and has never been heard from since. Still another, he considers as "miserly to the last degree, leading a wretched, miserable life, although worth \$50,000, and peculiar in conduct."

When a lad of 17 and while his mother was in prison he enlisted in the Union Army, after changing his name, got his bounty and immediately deserted. Later, he returned \$75 of the \$100 to the State treasury and endeavored to repay the government for the rest. Of this he asserts there is documentary proof. He was afterwards graduated at Cornell University where he had taken a high rank. Since then he has always

worked steadily, although at various callings: schoolmaster, engineer, surveyor, farmer, and machinist, preferring the latter because "there was more money in it." He has earned a fair living, chiefly in Kansas. He was once arrested and fined for extreme cruelty to a cow and was once complained of to the police for punishing his children too severely. He has recently been having altercations with his brother over selling the house which they own in common. He admits that he is very suspicious by nature, that he has a quick temper, that "he loses his control easily and does things which he would not otherwise do," and that he has been considered "cranky" by people in general and perhaps rightly so, but scouts the idea that he has been insane at any time. He "would like to say that he thought he was not responsible at times for what he did, as it would help his case, but cannot conscientiously do so."

On Saturday, September 27th, he went from Worcester to A. "to get his trunk," passing through Framingham. He reached his brother's house late in the evening but did not go in, as it was locked. He knew also that his brother was afraid of him and kept a loaded gun at hand. He got what sleep he could on the doorstep and at the railroad station. In the morning he asked his brother for his wheelbarrow with which to carry his trunk to the station. His brother immediately brought it from the B.s' where Mrs. T. lived and where the well-poisoning took place. C. left for Worcester the next morning.

As to his guilt, while he denies most vehemently that he intended, much less attempted to cause the death of Mrs. T. or anyone else, he says, "I will neither affirm nor deny that I put the sugar of lead into the well." He told no one of his intention to come to A. and his brother was much surprised to see him. Although he (C.) makes many other charges against his brother he does not accuse him nor any one else of committing the crime nor does he express any suspicions regarding it. He admits that he is the only enemy that Mrs. T. has. He thinks it "not best to say why he made the hasty and unexpected trip" to the scene of the crime, and in the course of his denunciation of Mrs. T. makes the somewhat significant admission: "Under the same circumstances I would again act as I did then," also that "when he is accused of buying sugar of lead elsewhere than at South Framingham he will answer that question" but that he who swore that he bought it there was guilty of perjury.

In this connection it is proper to state as indicating the intent of the perpetrator of the crime that as appeared at the inquest much of the poison was found scattered in plain sight outside the well, and that the analysis of the water by Prof. Hills of the Harvard Medical School showed but  $1\frac{3}{4}$  grains of the sugar of lead to a gallon of water. The smallest poisonous dose of this substance is five grains. C. had sufficient knowledge of chemistry to know its poisonous properties. He had no feelings of enmity whatever toward any of the B. household, with the exception of Mrs. T. whom he had long wished "to pay off in her own coin" by intimidating her and thus causing her such anxiety and distress of mind

that she would be glad to abandon the trust. He acknowledges that if he had gone to her and specified the needs of his children she would have supplied what money was needed. Against his brother he is very bitter, believing that he would be glad to see him punished whether guilty or not and would willingly testify falsely against him.

The injustice of Mrs. T.'s course rankled in his mind continually and he became so absorbed in thinking about it and how he could throw off her "domination" that he did not sleep, and, although a skillful mechanic, so spoiled his work that his wages were kept back by his employer. He felt that she and his brother "spoiled his life." The thought of suicide was constantly before him. He would walk about all night. He sought different kinds of work in the hope of shaking off the thoughts which possessed him. He felt that if it would only end in her giving up the trust he would willingly go to prison for life. It was his constant thought. "It went to bed with me and got up with me." "I cannot express how intently I felt on that subject." He does not, however, consider his feeling at all morbid. He fully believes there was and is a conspiracy between Mrs. T. and his brother to "torment him and break him down and ruin him in any way they can when they could have settled the whole thing by putting it into someone else's hands." He thinks that if there is not a conspiracy there is at least a community of interest between them. His dominant trait, avarice, is lost in his intensity of feeling on the subject. He reiterates that "he does not want the money." That "he or his child-en would scorn to take it." "It makes no difference whether the amount is \$3000 or \$3,000,000 it is the principle of the thing." He says, "I want that woman's foot off my neck and it will come off." "She shall not retain her suzerainty over me." "She does not care if she ruins me and transmits the wrong to my children." "It is a matter of indifference to her whether I go to hell or not." "I would rather see the devil trustee than Mrs. T." "I know that she wanted to carry her malevolence as far as it could be carried." "If free I would never cease to make her give up the trust." "That desire would be more to me than the life of my children. I would rather see them dead than have them accept a cent from her or remain under her control in any way." "She is my destiny, my evil genius." "It would not be wrong for me to kill her but I will not say that I would do it." "I feel as strongly about it as I would if my daughter were in a house of ill-fame." "The thought absorbs all my being." "It is my fixed purpose, *my duty* to throw that woman out of the saddle at any cost." "The idea is my religion. It is even greater than any affection for my family. For my own boy's sake I would not give it up."

He became greatly excited in the recital of his wrongs and tears came to his eyes. When the latter and more extreme statements were repeated to him verbatim long after his excitement had sub-

sided, and he was asked if in the heat of the moment he had not said more than he meant, he replied that he had nothing to retract or modify and persuasion and argument were of no avail. At the last interview his excitement and the strength of his delusions were far more pronounced than at others. This was because he had just learned that Mrs. T. still kept the trust and had not, as he had hoped, given it up in consequence of the recent developments.

The salient features of the case, with our conclusions, are as follows:

1. The family history with its record of murder, arson and other crimes, insanity, and strange and peculiar conduct, makes it very evident that the prisoner entered life and began his career handicapped with a strong, hereditary, predisposition to mental instability. In this connection it is perhaps of some significance that the deformity shown in his skull is of a kind that is regarded by the expert as a stamp of congenital degeneration.

2. His temperament—also an important feature—shows that many of these tendencies in his family have been reproduced in him. He is over-sensitive, emotional, quick-tempered, violent, cruel, more or less vindictive and very suspicious by nature. Moreover, although very intelligent and something of a "character" he is wanting in common sense and adaptability. He is inaccessible to argument and inclined to egotism. He has followed many callings but failed in all except in that of machinist, an employment that is not worthy of his abilities. His good traits, affection in general for his family, industry and temporary amiability do not prevent him from being very uncertain in his care of his children, and in his relations with people in general. Such a mental organization is recognized as the "insane temperament"—the paranoic type of mind.

3. These natural qualities appear to have grown more pronounced with years, evidencing progress toward mental deterioration, and when the T. affair arose his mental condition was ripe for the intense disturbance which followed, and in which his naturally morbid emotions and suspicions, as well as his deficient self-control and weak judgment, became morbidly intensified and passed the bounds of reason and sanity. The mental disturbance was even acute for a time as a result of brooding over his supposed wrongs. This is shown in his loss of sleep, appetite, interest and

ability in work and almost entire neglect of his children. He was also extremely restless and talked continually of his grievance. His belief about Mrs. T. who, though uncompromising in her sense of duty as trustee, and most unconciliatory in her attitude toward C., had done no wrong whatever to him or his children, had (combined with his hatred of his brother) finally developed into actual delusions of persecution and conspiracy. That his sense of right and wrong was impaired in regard to dealing with her is plainly evident from his profound conviction that it was "duty," his "religion" to "dethrone" her, and to see that his children devoted themselves to righting this "great wrong."

Whether or not he committed the crime with which he is charged, or whether or not he only attempted to frighten Mrs. T. and the others—a fact that he does not deny—there is no question in our minds that his insane delusions had goaded him to such a state of desperation that he was no longer a free agent, and that an overt act in that direction would be the logical culmination of his irresistible and insane desire.

In our opinion therefore the prisoner was insane and irresponsible at the time of the commission of the crime, is clearly insane now, and is a dangerous man to be at large."

The prisoner was found by the court insane and was committed to the Taunton Insane Hospital, without trial.

#### CRANIAL CONFORMATION OF P. H. C.

	Head Measurements.	Approx. Dimensions of Skull.	Average in Males.	Physiological Variations.	
				Min.	Max.
1 Circumference (Max.) .....	56.5	53.5	52.	48.5	57.4
2 Volume .....	1444.		1500.	1201.	1751.
3 Naso-Occipital Arc.....	35.5	32.5	32.	28.	38.
4 Naso-Bregmatic Arc.....	14.5	13.5	12.5	10.9	14.9
5 Binauricular Arc.....	34.	31.	32.	28.4	35.
6 Bregmato-Lambdoid Arc.....	13.6	12.6	12.5	9.1	14.4
7 Antero-Posterior Diameter....	20.	19.	17.7	16.5	19.
8 Greatest Transverse " .....	15.	14.	14.6	13.	16.5
9 Length-Breadth Index .....	73.6		82.2	76.1	87.
10 Facial Length .....	12.	12.	12.37	19.5	14.4



Distance between pupils, 6 cm.

Ears well formed and regular. Right, length 7.5 cm.  
Left, " 7.4 "  
Right, breadth 3.6 "  
Left, " 3.6 "

No pathological deformity of palate.

All measurements are given in centimetres. The approximate measurements of the skull are obtained by deducting the estimated thickness of the hair and scalp.

The one striking peculiarity is the length-breadth index which is rather below the usual physiological limit. The usual limits given are from 76.1 to 87. His cephalic index is 73.6. A skull with an index below 78 is regarded as dolichocephalic. The maximum circumference of this skull therefore shows a considerable degree of dolichocephalus. There are no asymmetries of the cranial bones nor of the face.

HENRY W. MILLER, M. D.,  
*Pathologist Taunton Insane Hospital.*

There is but little in this account of the case and our opinion regarding it to indicate its perplexing nature. Nevertheless, after repeated and prolonged examinations the situation resolved itself thus: Here was an intelligent man with an active mind, a family history abounding in crime, an intense, passionate and vindictive nature, a career in which minor criminal offences figured from time to time, and a mental organization unstable it is true, but showing no evidence of actual insanity on repeated and prolonged examination. In fact, we were on the point of pronouncing the prisoner to be not insane and therefore responsible, but of sufficient unsoundness of mind to limit his power of self-control and to entitle him (especially in view of his evident intent) to the leniency of the court, when we decided upon still another interview. Then for the first time his actual mental condition came to the surface in the above denunciatory explosion springing from marked delusions of persecution and conspiracy and establishing his insanity beyond question.

Such an experience is not new to the writer nor, I venture to say, to most alienists who are familiar with medico-legal examinations and there is no question in our mind that an opportunity for hospital examination in obscure cases, where the subject can be under day and night supervision, can be examined by a staff of resident alienists and must live under the eyes of nurses trained to observe and report the talk, conduct, peculiarities, and habits of patients, would be of the greatest help in reaching prompt and accurate decisions and with less expense to the State than obtains under the present system.

Three classes of persons would be affected by such a law :

1. Patients who conceal their delusions. These cases are notoriously suspicious and persistently refrain from unburdening themselves to the examiners, so that many long interviews are often needed to gain their confidence sufficiently to elicit their false beliefs.

2. Persistent feigning can also be far more easily and quickly detected under asylum conditions and surroundings than in jail, owing chiefly to the difficulty a prisoner experiences in keeping up the pretense of insanity uninterruptedly and consistently (as he must to be successful) where he is watched day and night by careful observers. Most malingering is, as we all know, bungling and readily exposed but it is only with the utmost difficulty that really adroit feigning can be detected by the expert in occasional visits to the jail.

3. Notorious capital cases. Here hospital observation as an adjunct to expert examinations must be of advantage in silencing popular clamor and alarm lest the prisoner escape just punishment through what is termed the "insanity dodge." The delay involved also tempers public opinion, as does the evident intent of thorough investigation shown in a term of hospital supervision.

Another and most important point is the fact that the hygienic conditions, mental, moral, and physical, of close confinement and seclusion in jail are apt to impair the mental condition of those who are insane, and to our knowledge in more than one case have undermined the general health of the patient.

The State of Maine has enacted a law to meet this condition which has been in successful operation for many years and has



since been incorporated in the statutes of Vermont<sup>1</sup> and New Hampshire. They are practically the same in each State and provide in effect that persons who are indicted for offences or are committed to jail on a charge thereof, whose plea is insanity, shall be ordered to the State hospital for the insane to be there observed and detained pending the determination of their mental condition. The medical officers of the hospitals as well the judges in the States in which this provision prevails regard it as a useful and just enactment, and we regret that owing to the length of this paper the interesting opinions as to its operation and efficacy, that have been kindly furnished us by Dr. Sanborn and the late Dr. Foster, superintendents of these institutions in Maine, as well as that of Dr. Addison Thayer of Portland, cannot be introduced here.

So much for the merits of the plan. In the writer's opinion, however, the law just mentioned is too sweeping in its provisions and hardly applicable to the conditions prevailing in Massachusetts. In the first place, to send all offenders whose sanity is questioned to the ordinary insane hospital for observation would add a criminal element to the atmosphere of those institutions, which we have long been doing our best to prevent, and would still further arouse the just indignation of the relatives of the present inmates at such association. On the other hand, their removal to our asylum for the criminal insane would be unjust to many patients who have not led vicious lives and in whom the criminal act is only an incidental manifestation of the disease, cases which are explicitly exempted by the law from confinement there. It is important to bear in mind also that with very few exceptions all the experts in insanity in the States of Maine, Vermont and New Hampshire are on the staffs of the State hospitals. In Massachusetts it is quite different and if the same law were in force here it would tend to deprive the State and the insane of the services of a considerable number of experts in private practice who have had extensive experience in a great variety of medico-legal cases. Some of them are also public examiners for com-

<sup>1</sup>The reader is referred to a valuable contribution on the subject entitled, "Medico-Legal Phases of the Vermont Observation Law for Criminal Insane," by W. D. Berry, M. D., in the *AMERICAN JOURNAL OF INSANITY*, Vol. LIX, No. 1.

mitment of insane persons and combine with their knowledge of psychiatry familiarity with practical criminology. It would therefore be far more wise and just in our opinion to make provision for the occasional, important and doubtful case only, by enacting a law to the effect that at the request of the examining physicians the judge of the court before which a person is to be tried for whom the plea of insanity is made, may order said person into the care of the superintendent of one of the State insane hospitals to be there detained and observed until further order of the court. By this means any radical and injudicious overturn of the present procedure in these cases would be avoided and at the same time advantage might be taken of the best means available for securing their thorough investigation.

At the meeting of the Boston Society of Psychiatry and Neurology held in November last at which the foregoing paper was read, a committee was appointed consisting of Drs. Folsom, Cowles, Channing, Jelly, Copp, Ayer, and the writer, to endeavor to secure the legislation therein urged, with the result that the following statute was enacted without opposition or unnecessary delay and has already gone into effect:

Chap. 219, Section 11. "If a person under indictment for any crime is at the time appointed for trial, or at any time prior there thereto, found by the court to be insane, or is found by two experts in insanity designated by the court to be in such mental condition that his committal to an insane hospital is necessary for the proper care or for the proper observation of such person, pending the determination of his insanity, the court may cause him to be committed to a State insane hospital for such time and under such limitations as the court may order."

## SOME OBSERVATIONS UPON BLOOD PRESSURE IN THE INSANE.

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The literature on the subject of blood pressure is increasing rapidly, and much pleasure and profit might be derived from reviewing the major part of it, but I will resist the temptation and merely call your attention to certain articles which have a direct bearing on the results which follow. For a long time it has been conceded by some that the blood pressure was increased in depressive states and decreased in excited conditions. In 1900, Maurice Craig in an article entitled "Blood Pressure in the Insane,"<sup>1</sup> says: "We may now, I think, take it as accepted that in states of acute mania the blood pressure is low, whereas in the majority of cases of melancholia the blood pressure is raised; in other words, that with the affective disorders of the mind there is an alteration in the tonicity of the vasomotor system." Pilcz<sup>2</sup> reached the same conclusion, and in one of his cases of circular insanity the blood pressure varied from 60 mm. in the excited state to 160 in the depressed period. It has been found, however, that in agitated melancholia the blood pressure is low, and all the evidence seems to indicate that a low blood pressure in the insane accompanies motor restlessness. The article by Dr. Craig, from which I have quoted, and another by Dr. Henry L. K. Shaw<sup>3</sup> are two which I have found most interesting from the standpoint of the alienist. The latter contains a number of references to foreign literature, to several of which I shall direct your attention. Pilcz found the blood pressure normal in the early stages of paresis, but low in the

<sup>1</sup> Brit. Med. Journ., Sept. 22, 1900, No. 2073, p. 184.

<sup>2</sup> Wien. klin. Wchnschr., No. 12, 1900, quoted by Shaw.

<sup>3</sup> The Tonometer and its Value in Determining Arterial Tension. Med. News, Vol. LXXVIII, p. 372.

terminal stage. Heim<sup>4</sup> found a high blood pressure in neurasthenics and hysterical children, and considered this a diagnostic point. The above references concern the points which will be of most interest to us in the consideration of the observations which form the subject of this paper. The other works to which Shaw refers deal with the effect of therapeutic measures upon the blood pressure, or with the history of the various methods of observing it.

Mention should be made of the investigations made at the Royal Asylum, Aberdeen, by Drs. Bruce and Alexander on cases of melancholia and of mania. Justice cannot be done to their work in a brief abstract, and I therefore append references to their published writings.<sup>5</sup>

Early in 1902 Dr. Harvey Cushing of the Johns Hopkins Hospital introduced to us his modification of the Riva-Rocci apparatus for determining blood pressure, and presented us with an instrument. Dr. Cushing's modifications are merely mechanical, and do not affect the principle of the apparatus. I wish to especially call your attention to the convenience of the Riva-Rocci instrument. Shortly before we began using it we were having constructed the elaborate apparatus of Mosso, which one might say requires a room to itself, and has as another disadvantage to its use that a number of patients are in no condition to be brought to this room. A number of those that might be would endanger the rather expensive apparatus. The form of the Riva-Rocci which we have used we have put together ourselves, and I am sure that three dollars will quite cover the cost of each instrument. It consists first, of a narrow rubber bag with linen covering with hook and loops, by means of which it is secured about the patient's arm. This bag communicates by rubber tubing with one arm of a glass T inserted in the cork of a wide-mouthed bottle, which latter is partly filled with mercury, and which has a straight glass tube with millimeter scale attached also passing through the cork, and from this the degree of pressure is read. The other arm of the above-mentioned T

<sup>4</sup> *Deutsche med. Wchnsch.*, No. 15, 1900, quoted by Shaw.

<sup>5</sup> *Journ. of Ment. Sci.*, October, 1900. *Lancet*, No. 4069, Aug. 24, 1901. *Lancet*, No. 4114, July 5, 1902.

is connected by rubber tubing with a pressure bulb, such as is used on a Paquelin cautery. There is also a branch from the first tubing closed by a pinch cock, by means of which the air is allowed to escape from the instrument after the observation has been made. To operate the apparatus, the arm band is fastened about the patient's arm above the elbow, the radial pulse is palpated, and air is forced into the apparatus by means of the pressure bulb. The height of the column of mercury at which the pulse disappears is noted, the pressure carried slightly beyond, the air slowly allowed to escape, and the height of the column of mercury at which the pulse returns is noted, and the mean of these two observations gives us the systolic pressure. Some observers only note the point where the pulse disappears, others only the point where it reappears. Either is correct but taking both secures accuracy. Recently Dr. Cook<sup>\*</sup> has described this instrument in a less home-made form, and discusses its manipulation very fully.

Stanton<sup>†</sup> has devised a very similar apparatus, which seems to have certain advantages over the Riva-Rocci though practically differing from it only in the width of the arm piece and in using a foot pump to obtain the necessary air pressure. By means of his apparatus he is able to obtain both the systolic and diastolic pressures, and from them calculate the mean pressure. I have tried his method with the Riva-Rocci apparatus with an assistant at the air pump, but was not able to obtain satisfactory readings of the diastolic pressure, due, I think, to the narrow arm piece, which Stanton considers the great defect of the Riva-Rocci apparatus. Jackson<sup>‡</sup> has compared the Riva-Rocci with the Gaertner, and finds that they give uniform results except in cases of arterio-sclerosis, where the former instrument reads too high. In regard to the presence of arterio-sclerosis as a complicating factor I wish to call your attention to a very interesting article by Dr. Clifford Allbutt, on "The Rise of Blood Pressure in Later Life,"<sup>§</sup> in which he says: "In

<sup>\*</sup> Journ. Amer. Med. Assoc., Vol. XL, p. 1199, May 2, 1903.

<sup>†</sup> Univ. of Penn., Med. Bull., February, 1903.

<sup>‡</sup> Bost. Med. and Surg. Journ., Vol. CXLVII, p. 223.

<sup>§</sup> The Lancet, No. 4149, Vol. CLXIV, March 7, 1903.

sufferers from arterio-sclerosis—I use the name arterio-sclerosis loosely for present convenience—exorbitant pressures are often but by no means constantly found. Between disease of the arterial tree and blood pressure there is no direct relation, in arterial disease, even in the extreme degree of it, normal or relatively low pressures are commonly observed; but I often notice that in cases of arterial degeneration the reading extends uniformly over a wider range of the scale, say, over 15 or 20 units, in which cases I record the mean figure and the extremes. In denying that elevation of blood pressure depends directly upon arterio-sclerosis, I have stood alone for some years against the high authority of von Basch and many others; but I think that some recent observers now admit the validity of my contradiction and the matter is one of cardinal importance.”

Since our introduction to the Riva-Rocci instrument we have taken a great many blood-pressure observations with a view of determining the value of such observations in mental diseases both as an aid to diagnosis and to treatment. It is the object of this paper to present the results which we have hitherto obtained. At first a number of single observations were made on a number of patients, but we soon realized that by such methods accurate results could not be obtained, and it was thought that if we regularly measured the blood pressure of several cases during the whole course of their mental alienation with the changes which probably took place as recovery, or other change occurred, that we would have more instructive and more accurate data. It will be remembered that the Riva-Rocci apparatus shows the systolic pressure, and this, I think, serves our purpose sufficiently well.

As we did not wish to go to the expense of having charts for blood pressure made until we became satisfied with the form, we have used squared ruled paper, which the nurses have divided as indicated. Also, for convenience, the observation has been recorded on a scale of fives, which gives approximate results. Should we consider the plan hitherto pursued sufficiently valuable to continue, we will have the blood-pressure scale divided into millimeters. We have had charts made of the blood pressure, mental and motor condition, the condition of the skin, and the pulse, in all the cases which have been under continuous

observation, and in certain cases the temperature and respiration has also been noted on the regular chart. A sample chart is appended. For convenience of consideration the results of these observations have been tabulated in the case abstracts which follow. Cases with arterio-sclerosis or with organic heart or kidney disease were not observed at first, as they would necessarily impair the results. The position of the mental and motor curves is indicated by plus or minus, the average position being normal in a few instances, and in a few others varying to such an extent that plus and minus seemed the best method of indication.

It is extremely difficult to indicate graphically the curve of mental activity in the majority of cases, and I feel that in a number of our cases a plus condition is shown incorrectly. The nurses as a rule seem to regard insane ideas as a plus condition and to lose sight of any underlying dementia which is not especially marked. This is shown in Case III, in Case VIII in part, and Cases XII and XV. Further, the mental activity may be more or less obscured by the emotional condition. The best solution seems to be to discard both motor and mental curves and substitute for them brief descriptions of the patient's mental condition and habits of living. In the notes which follow I have given the nurse's conception of the position of the curve. It must be remembered that these blood-pressure readings have been taken in an ordinary way, just as temperature, pulse, and respiration observations are often made. No attempt was made to isolate the patient from sights or sounds which might affect the reading, nor was the patient made to lie down if she was up and about, as it was desired to test the value of blood pressure observations as an ordinary clinical procedure. However, nearly a third of them were made while the patient was in bed. While observers differ as to the effect of posture on the blood pressure, the consensus of opinion seems to be that we find a higher blood pressure when the patient is in a sitting position than in a recumbent one. The factor of posture may be ignored in a given case when all observations are made when the patient is in one position, that is, either sitting or lying, but in comparing cases this factor should be considered. One conclusion to which we came was that the continuous taking of the blood



pressure has but little value in the majority of mental cases, and the plan has been adopted of taking it for a limited period, then discontinuing it and taking it again for another period whenever we felt there was a change in the motor or mental condition of the patient. I believe that the average of a week's observations gives as accurate a measure as when they are continued for a longer period. Frequently the first two or three observations are higher than the others, due possibly to an element of fear in the patient, so that I am not satisfied that one or two accurately show the blood pressure.

*Case I.* No. 824. Woman aged twenty-five. Had an attack of depression September, 1897, to May, 1898. Present attack is excitement, and began about May 10, 1901. She was discharged from the hospital July 19, 1902, and completed her recovery at the seashore. Urine showed slight trace of albumen, no casts. Heart normal.

Date.	Mental Curve.	Motor Curve.	Av. B. P.	No. Obs.
January 22-31 .....	+	+	101.6	38
February 1-17 .....	+	+	109.5	57
February 18-March 9...	+	+	110	78
March 10-April 8.....	+	+	106.4	101
May 1-16 .....	+	+	117.78	61
May 17-31 .....	+	+	109.66	59
June 1-10 .....	+	+	111.12	40
June 11-30 .....	+	+	110	56
July 1-15 .....	+	+	111.5	60
July 16-19 .....	+	+	109.5	12

At 8 A. M. of the day of her discharge the blood pressure was 135, and there was a greater degree of motor restlessness.

*Case II.* No. 544. Woman aged twenty. Diagnosis, dementia præcox. Had been an inmate of the hospital since Oct. 31, 1898. Her mental trouble dated from the winter of 1895-96. Heart irregular and shows hemic murmur. At one time urine showed albumen, no casts. Has sudden attacks of violence.

Date.	Mental Curve.	Motor Curve.	Av. B. P.	No. Obs.
March 15-29 .....	—	—	124	15
March 30-April 12.....	—	—	131	14
April 14-19 .....	—	—	125.8	6
May 1-31 .....	—	—	120	31
June 1-28 .....	—	—	118.8	22

*Case III.* No. 798. Woman aged twenty-six. Admitted to hospital March 29, 1901. Present is third attack, the first being in 1890 and lasting several months, the second lasting from October, 1892, to December, 1893. Onset of present attack was about Dec. 25, 1900. Is now in a demented condition. Heart rhythm somewhat disturbed, otherwise negative. Urine showed trace of albumen, no casts.



Date.	Mental Curve.	Motor Curve.	Av. B. P.	No. Obs.
February 1-16 .....	—	+	141.93	15
February 17-March 4...	—	+	149.87	16
March 5-19 .....	—	+	146	15
March 20-29 .....	+	+	135	19
March 30-April 8.....	+	+	141	18
April 9-18 .....	+	+	137	16
May 5-8 .....	+	+	136	7
May 9-18 .....	+	+	133	19
May 19-28 .....	+	+	133	20
May 29-June 7 .....	+	+	129	20
June 8-17 .....	+	+	130	20

*Case IV.* No. 924. Woman aged forty-one. Admitted to the hospital April 24, 1902. Shows depression and mental confusion with a good deal of motor excitement. Patient had a similar attack at twenty-one years, lasting three months. Has been mentally unstable ever since. Her present illness began eleven days before admission.

Date.	Mental Curve.	Motor Curve.	Av. B. P.	No. Obs.
April 30-May 12 .....	none.	+	154	25
October 9-31.....	+	+	116.63	46

Discharged from the hospital Jan. 19, 1903, improved.

*Case V.* No. 917. Woman aged twenty-nine. Mental symptoms began February, 1902. Patient was admitted to the hospital April 14, 1902. Was removed against advice June 9, 1902, and readmitted July 11, 1902. Patient was depressed, emotional and exhibited great motor restlessness. Heart negative. No arterio-sclerosis. Urine negative.

Date.	Mental Curve.	Motor Curve.	Av. B. P.	No. Obs.
July 16-August 7.....		+	108	45
August 7-31 .....		+	109.6	45
August 31-September 21.	—	+	112	45
September 22-Oct. 13...	—	+	118.7	39
October 14-November 5.	—	+	118	46
November 6-28 .....	—	+	113	47
November 29-Dec. 21...	—	+	119.5	41
December 22-Jan. 13....	—	+	115	30
Jan. 14-Feb. 3.....	normal nearly normal		128	40

Patient was discharged Feb. 3, 1903, much improved.

*Case VI.* No. 977. Woman aged twenty-seven. Has appearance of being ten years younger. Patient had typhoid fever at fifteen and twenty-four. Was brought to the hospital Sept. 27, 1902, from Danville Sanitarium, where she had been since March, 1902. Is in condition of incomplete dementia, with attacks of sudden violence. Heart negative. No arterio-sclerosis.

Date.	Motor Curve.	Mental Curve.	Av. B. P.	No. Obs.
Sept. 30-Oct. 21.....	normal	+	125.54	37
Oct. 22-Nov. 12.....	+	+	123.42	38
Nov. 13-Dec. 4.....	—	—	113.72	43
Dec. 5-26 .....	—	—	114.75	41
Dec. 27-Jan. 17.....	—	—	117.2	27

*Case VII.* No. 979. Woman aged twenty-six. There is an indefinite mental history dating back six years to the time of her graduation from the high school. She has been teaching in the public schools from that time until Jan. 1, 1902, when active mental symptoms were noticed. Was brought to the hospital Oct. 12, 1902. Heart negative. No arterio-sclerosis.

Date.	Motor Curve.	Mental Curve.	Av. B. P.	No. Obs.
Oct. 12-Nov. 7.....	+	—	120.6	44
Nov. 8-30 .....	±	—	118.47	46
Dec. 1-23 .....	—	±	127.12	37
Dec. 24-Jan. 15.....	—	+	126	39
Jan. 16-28.....	+	—	120	24

*Case VIII.* No. 946. Woman aged fifty-one. Admitted to the hospital June 16, 1902, after attempting suicide. Mental symptoms had been noticed five weeks before admission. Had transitory delusions. Was depressed, restless and emotional, and at times much confused. Patient improved quite markedly up to a certain point where she had frequent emotional attacks, and begged to go home. Heart negative. No arterio-sclerosis. Urine showed a trace of albumen, no casts.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
July 16-Aug. 3.....	+	+	106	26
Aug. 4-25 .....	+	+	114.5	40
Aug. 26-Sept. 16.....	+	+	124	41
Sept. 17-Oct. 9.....	+	+	125.1	39
Oct. 9-31 .....	+	+	128.4	44
Nov. 1-22 .....	+	+	123	45
Nov. 23-Dec. 15.....	+	+	111.47	44
Dec. 16-Jan. 6.....	+	—	115.7	37
Jan. 7-29 .....	+	—	115.3	29

*Case IX.* No. 999. Woman aged thirty-two. Admitted to the hospital Dec. 10, 1902. Mental symptoms date back two years to the birth of her last child. Depression and self-accusation were the most marked symptoms. Had twice attempted suicide. Heart negative. No arterio-sclerosis.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Dec. 13-Jan. 4, '03.....	—	—	120.4	38
Jan. 5-27 .....	—	—	121.34	46
Jan. 28-Feb. 19.....	—	—	118.24	37

*Case X.* No. 988. Woman aged twenty-one. Admitted to the hospital Nov. 9, 1902. Became exalted over religious matters about a year before, since which time she has become depressed and thinks she has committed the unpardonable sin. Heart negative. No arterio-sclerosis. Urine negative.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Nov. 11-Dec. 3.....	—	—	109.63	46
Dec. 4-26 .....	+	—	101.74	46

*Case XI.* No. 1003. Woman aged fifty. A case of well-marked neurasthenic depression. Admitted to the hospital Dec. 29, 1902, her mental symptoms dating back several months. Heart negative. No arterio-sclerosis. Urine negative. Patient left hospital March 2, 1903, against advice, slightly improved.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Jan. 6-28 .....	—	—	111.3	46
Jan. 29-Feb. 21.....	—	—	106.74	43

*Case XII.* No. 1009. Woman aged twenty-seven. Mental symptoms about a year before admission, which was Jan. 15, 1903. Is well-marked case of dementia præcox with incomplete dementia. Heart sounds slightly dulled. No arterio-sclerosis. Urine negative.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Jan. 28-Feb. 20.....	+	+	126.13	44
Feb. 21-27 .....	+	+	122.3	13
March 28-April 2.....	+	+	122	10

*Case XIII.* No. 1008. Woman, aged twenty-six, admitted Jan. 15, 1903. The patient has marked *flexibilitas cerea* and other physical symptoms of the katatonic form of dementia præcox. Mentally, however, while she has shown improvement, insane ideas are pretty well marked on careful investigation, and the case is undoubtedly one of precocious dementia. Heart negative. No arterio-sclerosis. Urine negative.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Jan. 28-Feb. 19.....	—	—	108.2	41
Feb. 20-March 14.....	—	—	108.3	42
March 15-17 .....	—	—	108.3	24

In connection with this case it is interesting to note that Anton<sup>10</sup> in a study of three cases of brain disease with katatonia, found low blood pressure in two of them.

*Case XIV.* No. 1018. Woman, aged twenty-three, admitted Feb. 25, 1903. Mental symptoms dated back about seven months, but did not become sufficiently marked to demand hospital care until about a month and a half before admission. There has been rapid retrogression, and the case is evidently one of dementia præcox. Heart negative. No arterio-sclerosis. Urine negative.

Date.	Motor.	Mental.	Av. B. P.	No. Obs.
Feb. 26-March 20.....	+	—	122	43
March 21-27 .....	—	—	124.6	13

The following abstracts are from cases in which the blood-pressure observations were not carried over so long a period, and have been taken usually in cases which were not so recent or were not

<sup>10</sup> Anton, G. Ueber Gehirnerkrankungen mit Katatonie. Mittheilung des Vereins der Aerzte in Steiermark, 1902.

undergoing any marked changes, or in other words, were more or less stationary.

*Case XV.* No. 655. Woman, aged thirty-four, has been under care since Dec. 30, 1899. Is a well-marked case of dementia præcox, with considerable motor activity. Is usually elated mentally. Heart negative. No arterio-sclerosis. Urine negative. Blood pressure observed March 24-30, 1903, averaged 122.7 mm., the mental, motor, and pulse curves all being plus.

*Case XVI.* No. 905. Woman, aged twenty-two, admitted March 18, 1902. Case is one of well-marked dementia præcox, with sudden impulses. Heart shows mitral stenosis, which improved while she was under care. No arterio-sclerosis. The day of admission patient's blood pressure was 140 mm., and six days later was 146 mm., the patient lying quietly in bed on both occasions. Her mental condition was depression. Blood pressure observed March 1-15, 1903, averaged 124.4 mm., motor and mental curves both being plus.

*Case XVII.* No. 78. Woman, aged fifty-six, has been in the hospital for ten years. Original diagnosis chronic mania but now in a condition of incomplete dementia. Heart negative. Arteries somewhat sclerotic. Urine shows trace of albumen and a few epithelial casts. Blood pressure taken March 8-14, 1903, averaged 139 mm., motor and pulse curves plus, mental minus.

*Case XVIII.* No. 380. Woman, aged forty-seven. Case of imbecility with marked auditory hallucinations causing considerable excitement. Has been in hospital six years. Heart shows a systolic murmur transmitted to the axilla. No arterio-sclerosis. Urine shows trace of albumen. Blood pressure taken March 8-14, 1903, averaged 142 mm., motor, mental, and pulse curves all being plus.

*Case XIX.* No. 1010. Woman, aged forty-six, admitted Jan. 15, 1903. Her attack began suddenly May 16, 1902, following death of her child, the patient being much run down from nursing. The first symptoms were excitement, followed by depression, which was in turn followed by a confused, agitated condition, during which she was brought to us. She at present (April 11) has improved slightly both physically and mentally. Heart negative, no arterio-sclerosis. Urine negative. Blood pressure observed March 8-14, 1903, averaged 121.5 mm., motor and pulse curves being plus, the mental minus.

*Case XX.* No. 947. Woman, aged fifty, admitted June 20, 1902, depression having become marked about two months before admission. Somato-psychic delusions early became prominent, and at present are the most marked symptoms. Heart shows no murmurs. Arteries are diffusely sclerotic. Urine shows a trace of albumen. At one time pulse was high tension and a course of nitrates and nitrites caused a marked change without however, any accompanying mental change. Blood pressure was taken for

the first week of March, 1903, and averaged 140 mm., motor and mental curves both being plus.

*Case XXI.* No. 959. Woman, aged twenty-one, admitted Aug. 3, 1902. The silliness of dementia præcox is most marked. At admission was in a condition of excitement, which has since subsided. Heart shows slight systolic murmur transmitted to axilla. No arterio-sclerosis. Urine negative. Blood pressure observed from March 26 to April 2, average 124.3, motor curve being plus, mental minus.

*Case XXII.* No. 908. Woman, aged sixty-nine, admitted to the hospital Sept. 2, 1899. Is an involution case with slight dementia. Heart and kidneys negative. No arterio-sclerosis. Blood pressure observed from March 1-17, average 127.69, motor curve plus, mental minus.

*Case XXIII.* No. 908. Woman aged forty-four; a case of epileptic insanity. Dementia is very slight. Heart shows systolic murmur transmitted to the axilla. Urine negative. No arterio-sclerosis. Blood pressure observed March 1-7, average 132.2, motor curve plus, mental minus.

*Case XXIV.* No. 936. Woman aged fifty-six. Case of melancholia "agitata." Heart negative. Urine shows trace of albumen. No arterio-sclerosis. Blood pressure observed March 24-30, averaged 131.6, motor curve plus, mental minus, pulse plus.

*Case XXV.* No. 1031. Woman aged forty. Recurrent melancholia. Had previous attacks six and four years ago. On admission was depressed with marked motor activity. Under treatment has improved. Heart negative. Urine shows trace of albumen. Slight arterio-sclerosis. Blood pressure has gradually fallen from 140 to 120, averaging 127.6 for the three weeks observed. The motor curve has gradually fallen and the mental curve has gradually increased.

While on following down the blood-pressure column I am unable to find the point where there was any change sufficiently marked to be noticed, which corresponds with any mental change, and on going over the charts I am also unable to find any constant ratio, either direct or indirect between the motor, mental and blood-pressure curves, nevertheless, I feel that these observations have their value, and in the data given above we find the general ratio is usually the same as that found by other writers; namely, that the average blood pressure is low in motor restlessness, or in mental excitement, and high in depressive conditions, or in cases where there is diminished mental activity. The blood pressure depends on so many factors that it is not surprising if we find occasional cases in which it does not accord with the usual observations. Some other factor which we may have overlooked may have caused the changed ratio, or our own

observations may be at fault. For example, in certain cases with mutism I have had great difficulty in deciding whether there was increased mental activity or not.

A dry and moist skin seems to have no effect, and I think that the cases observed by Kornfeld<sup>11</sup> must have been actively perspiring to have had any marked influence upon the blood pressure.

Schaeffer and a number of others have observed that the blood pressure was lower in the evening than in the morning, and have considered this a physiological variation. One writer gives this daily physiological fall as the reason that patients suffering from depression usually feel better at night, and the maniacal patients are usually worse. In our own observations the daily variation has been very inconstant. The morning and evening observations have frequently been the same, and the evening pressure has been higher than the morning quite as often as the reverse.

Briefly the conclusions based upon the present study may be stated as follows:

(1) The findings of other writers that (a) the blood pressure is increased in depressive states and decreased in excited states; and (b) that the motor condition has a greater influence on the blood pressure than does the mental condition have been confirmed.

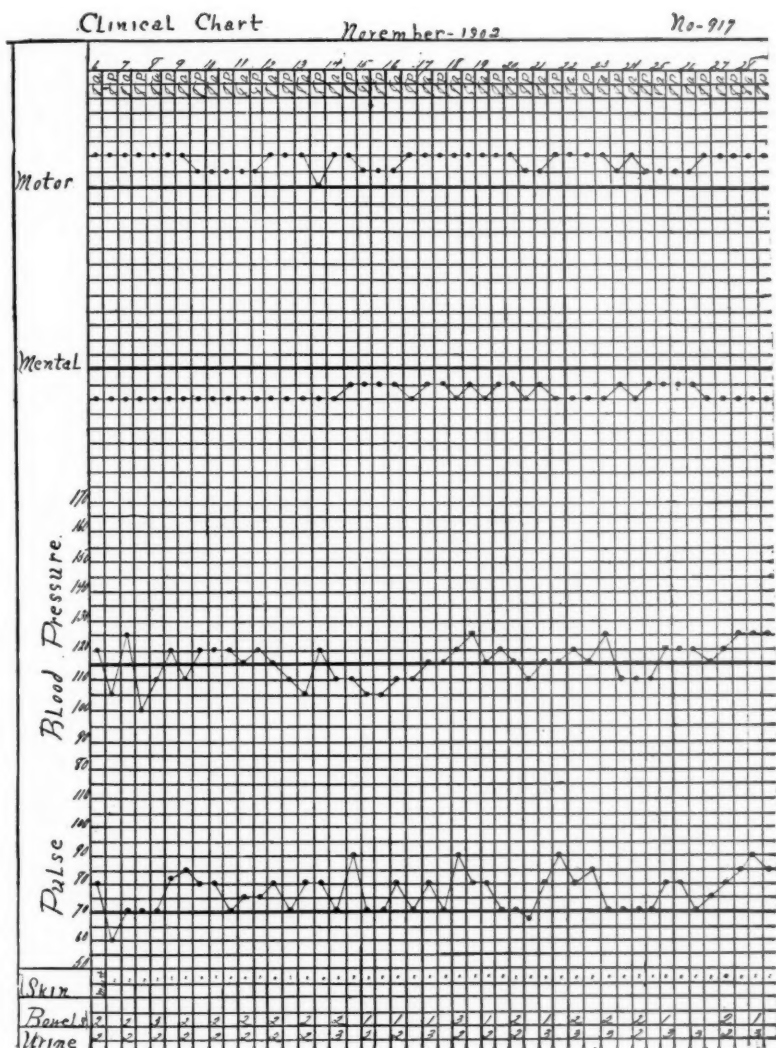
(2) A moist skin has no especial influence upon the blood pressure, although active perspiration may.

(3) There was no constant variation, as has been noted by Schaeffer and others.

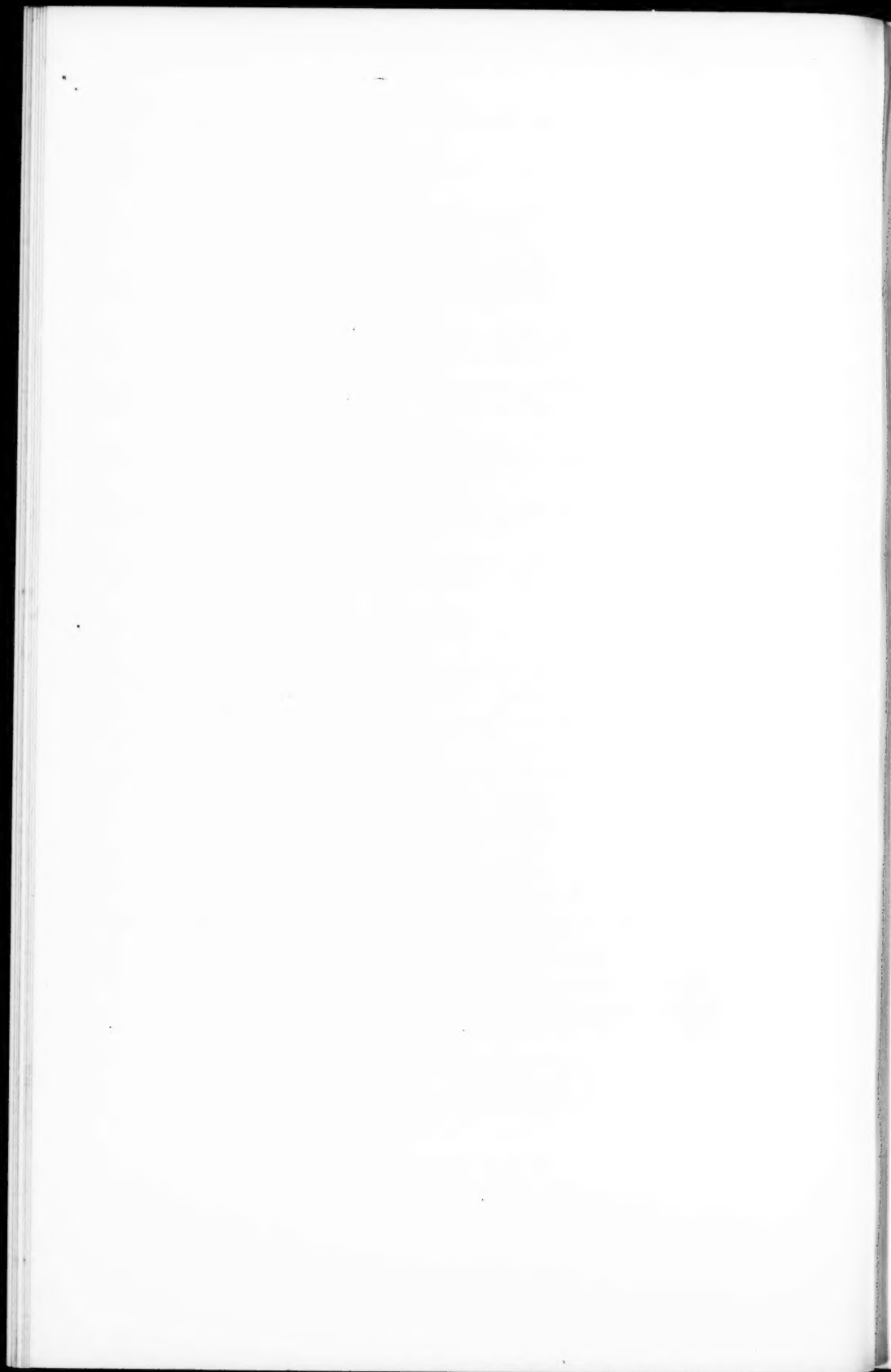
I feel that further conclusions are not justified by the cases presented here and others which are in a too incomplete state to justify publication. This paper will have fulfilled its mission if others are stimulated to observe blood pressure.

Too much importance should not be ascribed to this symptom. Its accurate observation has its value, and will probably have a greater value later when we have a better knowledge of how it is influenced by various bodily conditions. The general clinicians are adding to this, and we should do our part by observing how it is influenced in mental affections.

<sup>11</sup> Kornfeld, Sigmund. *Zur Pathologie der Angst*. Festschrift Dr. v. Kraft-Ebing, p. 411, 1902.



Showing blood pressure, motor and mental chart reduced four times. Since the preparation of this paper, these charts have been amended so that the lines above and below the normal (motor and mental) lines signify a definite condition (quiet, restless, excitement, etc.), but so far an entirely satisfactory arrangement has not been obtained.





## CHARACTERISTICS OF THE SCOTCH LUNACY SYSTEM.

By OWEN COPP, M. D.,

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The Scotch Lunacy System was formulated in the Lunacy Act of 1857, and represents the progressive development of nearly half a century. Its basic principle imposes responsibility for the general interests of the insane upon the central government, reserving to it the powers necessary to conserve them, but constituting local authorities the executives in direct dealings. Its application is well exemplified in the method prescribed for ensuring adequate accommodation for such.

For the purpose of pauper lunacy administration, Scotland is divided into twenty-seven districts, each having a representative board, appointed from members of certain elective bodies and charged with duties similar to but rather more extensive than those of trustees of our institutions. The need of each lunacy district as regards such accommodation may be determined by the General Board of Commissioners in Lunacy and intimated to the District Board, whose duty requires it forthwith to prepare plans, specifications, estimates of cost, and, should a new asylum be projected, to express its opinion as to a suitable and eligible site.

Such preliminaries having been arranged to the satisfaction of the General Board, the latter may proceed immediately to assess the gross cost upon the lunacy district, whose proper officers are in duty bound to collect and pay over the whole amount within eight months to the local board, which must complete the undertaking within two years. Should the District Board fail to act, the General Board may represent such failure to one of His Majesty's principal secretaries of state, who may authorize application to the Court of Sessions for the appointment of a person to exercise all its powers in this relation at the expense of the district.

Although there may be in this a potentiality of arbitrary action hardly permissible in this country, there is good reason to believe that the wise and discreet use of such power has largely eliminated the evil of overcrowding in Scotch asylums.

Authority of the government centers in a General Board of Commissioners in Lunacy, composed of three unpaid and two paid members, assisted by two paid deputy commissioners. The latter four are physicians, who devote their entire time to the service.

In advisory and supervisory capacity their duties are analogous to those of the Massachusetts Board of Insanity and other similar commissions, but their direct functions are important and comprehensive.

They may initiate investigation in any case arising under the Lunacy Act, and may summon witnesses to testify under oath.

The boundaries of lunacy districts may be readjusted to changing conditions, according to their judgment.

Within their discretion are the granting and revoking of all licenses to care for the insane in private asylums, lunatic wards of poorhouses and private dwellings.

They constitute a court of appeal for the arbitration and settlement of differences arising between parish and district authorities or asylum officials.

In matters of commitment, detention and discharge of patients the provisions of the Lunacy Act are strikingly similar to those observed in Massachusetts, suggesting our model of imitation. A few of the more notable exceptions may be presented.

Any qualified medical officer of a *public* asylum may grant a certificate of insanity in the commitment of a pauper to said asylum, but not of a paying patient, although other physicians are prohibited from so acting with a reference to any asylum in which they have an immediate or pecuniary interest.

The superintendent of any asylum, public or private, may receive or detain any person as insane, for a period not exceeding three days, whose case is duly certified as one of *emergency* by *one* qualified physician, who may be a medical officer of the asylum concerned.

Authority of detention conveyed by an order of commitment ceases three years from the first day of January next following

admission of the patient, and annually thereafter, unless there shall be transmitted to the General Board of Commissioners in Lunacy a certificate by the superintendent "on soul and conscience" that further detention of the patient is "necessary and proper either for his own welfare or the safety of the public."

The General Board may, on application of the proper person, issue a permit for a patient to leave an asylum on probation "for such time and under such regulations as it may consider necessary or proper," and to return without new commitment at any time within the specified period.

The last two provisions are in harmony with my observation in Scotland and on the continent, that zeal in restoring suitable patients to community life is greater there than here.

The voluntary relation of patients to asylums is encouraged by authorizing any superintendent, with previous written assent of one commissioner, to "entertain and keep" "as a boarder any person who is desirous of submitting himself to treatment, but whose mental condition is not such as to render it legal to grant certificates of insanity." Such cannot be restrained longer than three days after giving notice of intention or desire to leave.

The early treatment of the acutely insane, without resorting to commitment, is facilitated by allowing such to be received into unlicensed houses for "temporary residence only, not exceeding six months," on the certificate of one qualified physician that the mental affection is not confirmed and such temporary care is expedient with a view to recovery.

Otherwise, registration of the insane is so thorough that few escape official notice.

Every inspector of the poor is required on penalty of £10 to report the name and location of any pauper lunatic who comes to his knowledge within his district.

Supervision extends over all private patients having property under curatory. Other private patients are not exempt unless they are cared for in their own homes or elsewhere without compensation, and are not harshly or cruelly treated, and, if insanity has existed longer than one year, are not subject to "compulsory confinement to the house or restraint or coercion of any kind."

The high ratio of visible insanity is thus partially explained. Over sixteen thousand of four and one-half million inhabitants

are registered as insane—I to 281, against 1 to 308 in Massachusetts. In forty-five years the general population has increased 50 per cent, the insane 186 per cent, more than three and a half times as fast.

With the exception of fifty insane criminals in the lunatic department of the General Prison, they are distributed in five locations: 10 per cent in licensed wards of eighteen poorhouses; 17 per cent in private dwellings; less than 1 per cent in three private asylums; 26 per cent in seven royal asylums; and 46 per cent in sixteen district asylums.

During the last decade there has been a retrograde movement from private asylums and poorhouses to the extent of 20 and 32 per cent respectively; a nearly stationary condition in royal asylums and private dwellings, and a strong current toward the district asylums, whose inmates doubled.

Lunatic wards of poorhouses are always separate from the quarters of other classes, and, if the quota of insane exceeds 60, must be in detached buildings.

A license, revocable at will, must be issued by the General Board of Commissioners directly to the governor of the poorhouse, which lapses at the termination of his service and requires annual renewal. He is made personally accountable for carrying out its provisions, which relate specifically to the care and treatment of patients, their dietary, the housekeeping and ward furnishings.

Admissions in each case must have the sanction of the General Board, and are restricted to the harmless and incurable, with the exception of the three parochial asylums, which receive the curable and dangerous also.

A physician must be resident for more than 100 inmates, and his visitation daily for 50 to 100, and bi-weekly for a less number.

The unique feature of the Scotch regime pertains to family care, in which are 17 per cent of all registered insane, 20 per cent of pauper insane; in round numbers, 2800 patients, enough to fill six district asylums of average size, distributed among more than 2000 families, in every county of Scotland. Two counties thus provide for 44 per cent of their insane wards; two others, 40 per cent, and so on, down to 7 per cent.

Such has been the growth of many years. The beginning

seems to have been the registration of defectives in private dwellings at the inauguration of the Lunacy Act, in order to bring them under supervision without formality of commitment. The practice has continued to the present, affording institutions relief from admission of many whose commitment poverty would otherwise have compelled. A thousand patients under family care, or 37 per cent, have never been inmates of asylums. The enrollment of 1902 contains 106, or 40 per cent. They usually remain with relatives, whereas others from asylums are boarded with strangers in most cases.

Last August I had the pleasure of seeing some of these patients in families in several villages in the county of Fife, where conditions are more favorable than in the western and highland districts, although I was assured and feel confident that they are always as comfortable for the patients as for the people in the neighboring communities.

In the main the patients were quiet, inoffensive, demented or feeble-minded, and manifested no special eccentricities in manner or appearance. One woman sat alone in her room, silent and downcast, being at night restless and noisy, to the discomfort of her room-mates. She was a newcomer, and considered unsuitable by her guardian, but her gradual improvement seemed to justify the parish doctor in delaying her return to the asylum in the hope of ultimate success.

A single bed-room, of moderate size, with one window, is usually assigned to the use of all the patients together, who sleep in separate beds arranged in niches in the walls. They suffer no greater crowding than other members of the family, and share all their comforts and privileges, as a rule.

The guardians appeared to be kind-hearted and respectable. Their motive for the work is evidently thrifty, but not unworthy. One was observed to be a prosperous farmer, who kept twelve cows and several horses, being greatly assisted in their care by his three able-bodied male boarders.

Several spinsters till small gardens with the help of their female wards, but everywhere their robust health, good nutrition and contentment assured me that the benefit was mutual. I was told by an inspector who had been familiar with the system for

twenty years that the relation often extended over long periods, and led to strong attachments between patients and guardians.

One could wish to see fewer young children brought into such association, but care is taken to avoid it so far as possible.

The families which I visited averaged three patients each, but the general average is only 1.25, 1659 having one, 334 two, 117 three, and 45 four. Restriction to one or two in a home is favorably regarded, as offering the best chance of sharing the family life.

The patients are widely scattered, and never permitted to become so numerous as to assume a distinct caste in the community, a striking contrast to Gheel, where 1800 insane are boarded with 95 per cent of the families of six or seven villages having a total population of 13,000, being one to seven, or 14 per cent. The greater difficulty of supervision is obvious, the inherent weakness of the system. However, good safeguards have been adopted.

The Deputy Commissioners in Lunacy inspect twice yearly, and are experienced counsellors to all. The inspector of poor sees them quarterly, as the agent of the parish to which they are chargeable for support. The parish doctor calls regularly every three months, oftener if illness requires, and receives a special fee for each visit, an inducement to the faithful discharge of this duty.

In the selection and control of families the key to the situation is held by the General Board, whose sanction must be obtained by each one, from whom it may be withdrawn at any time.

Three factors are operative in forwarding the system. The General Commissioners afford suggestive and sympathetic oversight, stimulating the interest and co-operation of asylum superintendents and parish officials. They are actuated by the highest motives, firmly believing that the welfare and happiness of patients are promoted and overcrowding in asylums is lessened. The asylum superintendents control the selection of patients, and might seriously obstruct progress if they should not accept the theory that the primary functions of asylums are curative and custodial, and simpler methods are appropriate in the care of those who are suitable to live without. But whatever the attitude of the General Board or of the superintendents, inertia would be inevitable unless adequate incentive were presented to local author-



ities, who have the initiative, and must assume no small additional burden in the management of family cases.

Such incentive arises out of pecuniary saving to the rate-payer. The weekly asylum rate for maintenance for 1902 was \$2.59. Incredible as the claim may seem at first blush, I was told that the county of Edinburgh saves three shillings a week on each of its 343 charges in private dwellings, or the sum of \$13,000 annually, although its family care rate is highest of all the counties, exceeding the mean by nearly two shillings. The average saving to parishes in 1902 was \$1.03 weekly per patient or 40 per cent, amounting in the aggregate to over \$140,000. A moderate deduction should be made for cost of clothing, medical attendance, and visitation by parish officers, and, in a computation of the ultimate cost to rate-payers, allowance should be made for salaries and expenses of the two Deputy Commissioners in Lunacy, which are not directly chargeable to the parishes.

However, on the other side of the account should be added the interest on the investment necessary to establish and keep in repair six asylums of average size which would be necessitated in housing family-care patients. Such economic result is extraordinary, and could not, in my judgment, be paralleled in this country.

The prototypes of Scotch institutions for the insane are the Royal Asylums, which represent in Scotland the McLean, Butler and Concord Hospitals of New England. They were founded and endowed mainly from private benefactions, but, with two exceptions, received aid at the outset by contributions from parochial treasuries. Chartered and governed as corporations, they are pre-eminently private establishments, although three-fifths of their inmates are dependents from neighboring parishes, by which they are supported at a fixed charge slightly in excess of the district asylum rate. Nearly a thousand patients are cared for at "Morningside," or Aberdeen, but 600 equals the average capacity.

They are beautifully environed, usually occupying some old estate of ample acreage, with broad lawns set with many trees, shrubs and flowering plants, in the midst of which stand massive blocks of houses of brick or stone, whose original compact arrangement is gradually disappearing in renewal and extensions

on the segregate plan, with small units and wide intervening spaces. Especially marked is this tendency in the recent development of the Royal Crichton institution, at Dumfries, under the able direction of its progressive superintendent. Nowhere else, not even at Alt-Scherbitz nor the newest example of German colony at Galkhausen, did I observe so complete a differentiation of classes and independence of administration. This old and rich asylum is being rapidly reconstructed, according to hospital and colony ideas more extreme than are generally accepted in Scotland, and requiring larger resources than are commonly available, yet presenting the essentials of the general trend of progress.

The first distinction is drawn here, as elsewhere, between private and pauper patients, in two main groups, eventually to be separated by a considerable distance. Present activity pertains to the division for indigent cases. There were in process of construction at the time of my visit two fine reception hospitals, one for either sex, each designed for 40 patients, located about 100 yards apart, and identical in interior plan but differing architecturally.

The first story is divided in halves by a broad corridor, communicating in front, on the one side, with a reception ward of 16 beds with 4 single bed-rooms adjoining, and on the other with a ward for 20 convalescents. In the rear is commodious provision for office of resident physician, history taking, reception and examination of patients, their observation and temporary care. The dining-room is adjacent to the convalescence ward and the kitchen, the latter isolated in a back corner.

The second story furnishes a patients' dormitory and living room for officers, nurses and servants, so arranged as to afford suitable separation.

Both hospitals would be in charge of a woman physician, resident in the men's department. The matron, being also head nurse, would hold a similar relation to both, living in the women's department. During the day all nurses would be women, except on the convalescent ward, where selected male nurses would be on duty continuously, and at night throughout the men's hospital.

A new patient would be taken at once to the reception room, with associated bath, and receive the customary attention, after



which she would be put to bed in the observation and examination room. Thereafter the physician, having meantime withdrawn the friends into the history room and obtained an account of the patient's illness and past, would make a physical and mental examination and decide whether she should remain in the care of a special nurse or be transferred to a bed in the reception ward.

So far as observed, preliminary bed treatment, of varying duration, is almost universal in Scotch asylums and on the continent, especially in the German psychiatric clinics, where it is frequently continued much after the manner of a general hospital.

The colony idea is finding expression in small industrial groups and home villas, each completely equipped with kitchen and dining-room. A farmsteading for 60 working patients has been established on the large farm of 850 acres; an equal number of women are associated in a house connected with the laundry and sewing rooms. Eight dwellings, each a home for 16 congenial patients, are distributed here and there throughout the extensive grounds. A pavilion for 20 tuberculous patients occupies a sunny corner somewhat remote from other groups.

A pleasant drive some eight miles out from Dumfries took us to Friar's Carse, a magnificent property of 650 acres, recently acquired, where a half score of wealthy patients were passing their convalescence in a fine old mansion with many historic associations. Presumably, here will be wrought out an appropriate scheme for private patients, in harmony with that developing at Crichton for the indigent.

My attention was here particularly drawn to another feature, more or less common to institutions abroad, which seems to me to contribute much to contentment and stability in their service. The efficient employee, desiring family life, is allowed to marry, being provided with three or four rooms at a moderate rental, or rent free, inclusive of heat, light, milk and vegetables, and receiving an increase of about 30 per cent in his wages in consideration of boarding at his own table. The wife is not usually employed. Arrangements have been made at the Crichton institution for 30 such families, some in large patients' buildings planned to afford independence, others in rows of six houses, and still others in cottages.

More than half the 650 patients in this asylum are private, paying as high as \$3000 per annum in some cases. The rate of maintenance approximates \$5 a week, about double that of district asylums, but not excessive for its class of patrons. The large annual surplus is expended in structural improvements.

The Royal Edinburgh Asylum at Morningside is so well known through Dr. Clouston as to hardly require allusion, even to its luxurious Craig House and associated villas, rivalling McLean in the excellence of its provision for private patients.

At Aberdeen the Royal Asylum stands in the heart of the city, and has only limited acreage of land devoted to recreation of patients, beautiful grounds and gardens; but some twenty miles out a farm of 200 acres is tilled for the benefit of the home establishment by 120 male patients. Here, in 1896, one of the earliest reception hospitals was erected for 230 patients of both sexes, organized and conducted after the general regime later described.

Passing from royal to district asylums one scarcely notes the transition, save in plainer environment and reduced scale of expenditure, continuing acutely conscious of enthusiasm, enlightened methods and progressiveness.

This form of public provision was inaugurated by the Lunacy Act, to supplement Royal Asylums or provide for lunacy districts to which they were not accessible.

The district asylum is the analogue of our State insane hospital, holding a relation to its district similar to that of the latter to the commonwealth. Both are essentially pauper institutions, the former hardly exceeding 3 per cent of private patients, and the latter 8 per cent. No discrimination is permitted, the private patient paying the same rate of board as the pauper, and receiving no preference as to room, diet, attendance or privilege. The average capacity is one-half that of our institutions, the maximum not exceeding 900.

Assessment is made upon the lunacy district as a whole for land, buildings, furnishings, equipment, improvements and repairs, but current expenses are met out of receipts from constituent parishes, each supporting its charges at a rate of board based on the actual cost of maintenance and determined from time to time by the district board, with the approval of the General Board of Commissioners, therefore varying in different asy-

lums and at different periods. During the last decade extension of accommodation for the insane has been practically confined to district asylums, whose patient population has increased 3498, or 100 per cent. Traditional Scotch thrift is manifest in the adequate response of the public to so great a demand. Overcrowding has not been allowed to supervene to any material extent, so business-like has been the method or so even and sustained the effort to meet the requirement.

It may be of interest to contrast results in Massachusetts, whose State institutions within the same period gained an average patient population of 3360, and in number of beds occupied about 2700, beginning with marked overcrowding, and ending with an increased shortage of 660 beds.

The total expenditures of district asylums for land, buildings, furnishings, equipment, improvements and repairs amounted to \$6,928,912, or \$692,891 annually, or \$1981 for each patient of increase in the average population, whereas our State institutions expended for the same objects \$2,996,798, or \$299,680 annually, or \$892 for each patient of increase in average population.

However, our efforts were spasmodic, and much more energetic during the last third of the decennium, so that time did not allow the expenditure of \$1,159,329 of the \$4,093,670 actually *appropriated* within the period for these objects, which include provision for 3450 beds at a gross outlay of \$1187 each.

The general conclusion may be fairly drawn from the above that Scotland spent considerably more than Massachusetts, proportionately, in providing and keeping up establishments for the pauper insane.

The quality of its construction is more substantial than ours, especially during the recent development of our colonies, but I gained the impression that the cheapening tendency is appearing there, particularly in the more densely populated centers.

The new colonies projected for the counties of Edinburgh and Aberdeen are estimated to cost about \$1000 per bed. During the last three years 2053 beds have been provided for at our different institutions at an average of \$616 for patients' buildings and their furnishings, or \$1041 for all extraordinary expenditures, inclusive of repairs and improvements out of current income.

Turning to comparative cost of maintenance, we find the aver-

age weekly rate in district asylums to be \$2.36 for the decade, rising to \$2.54 for the last two years, indicating an advancing tendency which has been more than equalled here.

In conformity to the Scotch rule, repairs and improvements having been eliminated, the corresponding rate in our five State hospitals, Worcester and Medfield asylums, was \$3.30 for the last two years, an excess of seventy-six cents over the district asylum rate. The chief components compare thus:

Food .....	\$1.010	there;	\$0.996	here.
Fuel .....	0.235	"	0.335	"
Salaries and wages.....	0.678	"	1.269	"
All other current expenses.....	0.617	"	0.700	"
<hr/>				
Whole rate.....	\$2.54	"	\$3.30	"

The average prices paid by district asylums in 1902 were: Fresh meat, \$0.1125 per pound; fresh fish, \$0.0425; butter, \$0.2075; sugar, \$0.036; flour, \$4.25 per barrel; coal, \$2.83 per ton. Our greater expenditure for fuel is proportionate to the higher price of coal under normal conditions, raised during this period because of the anthracite coal strike. The relative number of employees probably does not differ materially in the two countries, but our scale of wages is about twice as high. Thus, nurses receive at the outset, in addition to board and lodging, single men, \$12.50 per month; women, \$7.50; a carpenter, \$375 per annum; mason, \$400; engineer, \$500. The ratio tallies with the difference in cost of service.

The disparity in all other current expenses is eight cents a week in favor of district asylums, which may be offset by our more expensive care of private patients, who number thrice as many, yield six times the relative income, and raise the support rate twenty-two cents.

The excellence equals the economy of these institutions. They are pervaded by a kindly, democratic spirit, considerate alike of patient and employee, appreciative of the idiosyncrasies of individuals, and resourceful in avoiding incompatibility, restraint, seclusion and other forms of coercion.

Clinical and executive duties seem to chiefly engage the attention of physicians, so that scientific work is less prominent than in German asylums, where one always finds a well-equipped labo-

ratory, wherein the medical officers are seen busy in research of varied character. However, the average German staff is twice as large, and usually more stable and experienced. A quickening in this direction is perceptible. The laboratory of the Scottish Asylums in Edinburgh is giving a good account of itself. Maintained by voluntary contributions from royal and district asylums, it affords them facilities for special instruction and investigation.

Local laboratories are springing up, as at Woodilee, where a very complete and satisfactory building for this purpose is being erected at an outlay of £2500. Several times I noted the appointment of pathologists, junior assistants and medical internes, after the custom of most of our hospitals.

It was gratifying not to hear, as a rule, the common complaint of an unstable and unsuitable staff of nurses. They appeared to be dealt with on a plane of mutual confidence and respect, to have moderate hours of service, comfortable living quarters outside the wards, and freedom, to a large degree, from restrictive regulations. Many are married and live with their families. They are trained in their duties and in general nursing, and stimulated to secure a diploma of proficiency from the Medico-Psychological Association by a wage increase of £5 on its achievement.

A growing enthusiasm for the care of male patients by female nurses was observed. Perhaps the most extreme exhibition of this and certain other tendencies may be seen at the Sterling District Asylum at Larbert, whose activities are most inspiring. It consists of three units, close together, but essentially independent in operation—a compromise between the block and segregate plans. All patients, both men and women, are under the supervision of two matrons and five assistant matrons. In the first group for 350 (50 per cent) men and women, who are employed in the central administrative departments, care is furnished by their respective sex, because male attendants are needed to direct and assist in the work; in the second, for 250 (35 per cent) sick, feeble, untrustworthy or refractory patients, only a single male ward for 35 inmates is in charge of male nurses, who are, nevertheless, subordinate to the assistant matron. The same arrangement obtains in the third unit, or reception hospital, for

120 (15 per cent) new patients, later distributed to appropriate wards in other parts.

The quality of these matrons is worthy of attention. They are all high-class women, refined, educated, graduates of general hospital schools for nurses, or otherwise trained in their duties. They are correspondingly well compensated, and move on the plane of officers, though in touch with every patient and employee. Their elevating and leavening influence over the lower and usually weaker ranks seems to me invaluable.

The adequacy of night service here is notable. The saving in wages of women nurses on male wards is sufficient to allow a generous increment to the staff, which is half as large as the day corps. The ratio to patients is one to five in the hospital, and one to ten in other units. No inside door is ever locked, guaranteed by the little brass cover over every keyhole.

Single rooms are practically discarded, being only used by a nurse in special attendance upon some refractory patient who is temporarily withdrawn from disturbing others. I was profoundly impressed, both in Scotland and Germany, by the strong movement away from them, the contention being that patients in them are neglected, prone to form vicious habits, and to deteriorate mentally and physically. Restlessness and unclean personal habits are regarded as distinct contra-indications for their use. The average asylum does not have more than 10 per cent, and several were observed to follow the practice of Larbert.

Greater pains are taken to remove irritating causes, to avoid adverse reaction of one patient on another, to safeguard by special nurses, and to allay excitement by every means available, especially in Germany, by the warm, prolonged bath.

In these comments I have not essayed a complete or critical review of the Scotch Lunacy System, merely a delineation of salient features, not always present nor approved, such as seemed to me indicative of modern progress and tendencies, not alone in Scotland, but in Massachusetts and elsewhere. They may be epitomized under three heads:

1. The hospital idea, embodied at present in the reception hospital, which is destined to acquire full laboratory equipment for clinical aid and scientific research, and eventually to expand, in



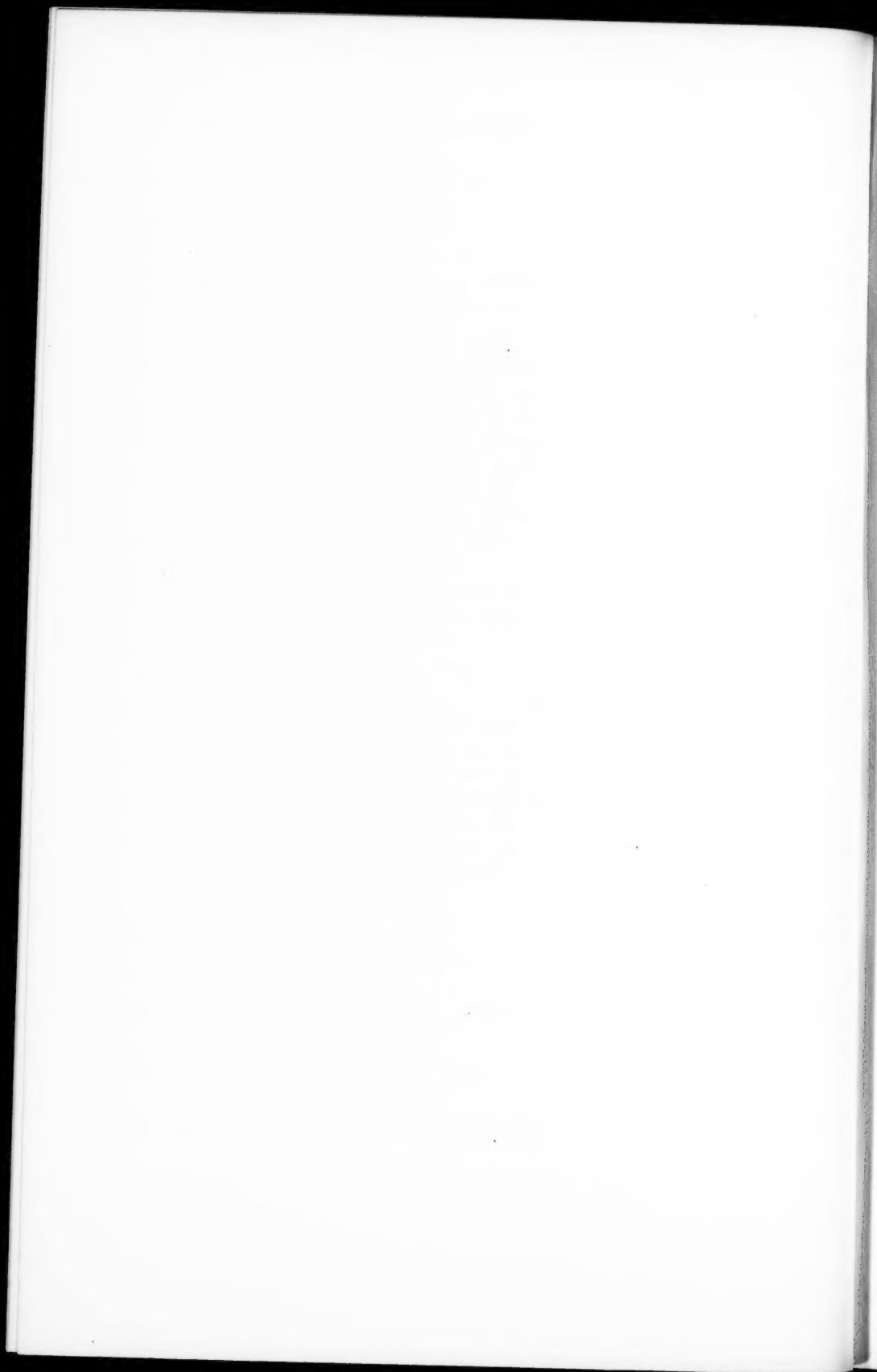
urban localities, into the full German psychiatric clinic in connection with the university or other teaching center.

2. The colony idea, expressed at existing asylums, in farmsteadings, industrial groups, home villas and outlying farms, and in the new colonies projected after the Alt-Scherbitz plan. This is really a composite of reception hospital, closed asylum and open colony, an aggregation of small detached units, closely associated and organized much after the fashion of the conventional institution. Ultimate development will affect a wider separation of these main components, retaining all, preferably, under one superintendence, but preserving the distinctive character of each; the evolution, on the one side of the curative hospital for treatment, research and teaching, and, on the other, the true colony, a village of industries and homes, with individual interests harmonized under central direction, of an advisory nature, so far as feasible.

3. Community care, now facilitated by boarding in families and temporary treatment in unlicensed houses by a general practitioner.

Such is the official regime, presenting the forbidding aspect of legal and confirmed insanity; but a more hopeful phase is appearing in Edinburgh, as elsewhere, relating to the treatment of mental affections in the role of ordinary disease. Under the inspiration of Dr. Clouston and others this is likely to be soon attained at the Royal Infirmary, in a pavilion for the reception of mental cases under conditions similar to those of any special department, as for surgery, gynecology, etc., with a visiting staff of alienists and preservation of the voluntary relation of patients.





## A CASE OF ASTASIA-ABASIA ASSOCIATED WITH EPILEPSY.

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The syndrome that was called astasia-abasia by Blocq (1), but was first described by Jaccoud, then by Charcot and Richer and by Weir Mitchell, has been found associated with various conditions. It has been a concomitant of hypochondriac and neurasthenic conditions, of depressive insanities, of paralysis agitans, and of Basedow's disease. Further, there have been cases in which the symptom complex has been seen with definite lesions of the central nervous system. Hofbauer (2) presented a case to the "Gesellschaft für Innere Medicin," Vienna, June 5, 1902, in which astasia-abasia and nystagmus had followed inhalation of fumes of chloroform. Whatever the associated morbid or functional entity may be, and whether its mechanism is that of inhibition, of fear, of amnesia, or of fixed idea, most of our present day writers believe that the essential nature of astasia-abasia is hysteroid in all its varieties. In some of the cases reported there has been an absence of the usual stigmata of the grand neurosis, and in those instances the conception must be that of a monosymptomatic hysteria.

In spite of the fact that hysteria and its various phenomena are so frequently found in subjects of epilepsy, the number of reported cases of astasia-abasia associated with this convulsive disease is a small one. Thyssen (3) published one case in which the two conditions were simultaneously present; Knapp (4), among the fifty cases of astasia-abasia collected by him, found two with epilepsy; Urriola (5) noted one in a negro, in which the diagnosis, however, was hysteroid-epilepsy; Gabbi (6) has recently described a traumatic astasia-abasia in a young girl who had epileptic attacks; and, finally, Salaris (7), who reviews the whole

subject, has added two observations—to which list we wish to append one more case.

Among the 2432 cases admitted to the Ohio Hospital for Epileptics since its opening to the middle of February, 1904, this is the only one in which the symptom-complex denoted astasia-abasia has been present. The patient belonged to the service of Dr. William H. Pritchard, to whom I am indebted for the opportunity of the studying the case.

M. M., female, married, aged 34 yrs.; housewife; mother of two children, both well, neither of whom has epilepsy. Her father died of Bright's disease; her mother is living and well; one sister was an inmate of the Toledo State Hospital for about six months, five years ago; she knows nothing of her grandparents; there is no epilepsy in the family. Patient had scarlet fever, measles, and whooping cough when a child. There were no convulsions at the time of her pregnancies. Her first child was delivered instrumentally; the second parturition was normal. There were no abortions and no premature births.

She states that she had her first epileptic attack eight years ago while preparing dinner. At that time she burned herself severely, the scar of which she bears upon her chest and abdomen. She says that after the first attack she could not walk and was not out of bed for a year, for she had continuous attacks and had to be kept under chloroform and morphine a great part of the time. From the time of her first fit, her power of locomotion became gradually weaker and she was, at the end of the year, sent to Cleveland, where she underwent three operations, apparently directed to correcting uterine displacement.

In November, 1898, she obtained her first admission to the Ohio Hospital for Epileptics. She was unable to walk and was put into a cottage with its own dining-room, where she was not satisfied, and, in answer to her request to be transferred, she was told that when she was able to walk she would be sent to a different cottage. She then gradually acquired the use of her lower limbs so completely, that, in the better cottage to which she was finally sent, she worked in the dormitory and became the best bed-maker there. In this seemingly normal condition she continued until going home for a visit in 1902. While on her return journey to the hospital, the train was wrecked and she had

to be "pulled out of the window to be rescued." Immediately after this catastrophe she was again unable to walk and was taken home. Here she was frequently examined by the medical officials of the railroad, but the company never was sued. In October, 1903, she was again admitted to this hospital.

Our patient is fairly well nourished, but somewhat pale. Her appetite is good, and there is no nausea and no vomiting. She is inclined to be constipated, and occasionally has headaches, which usually occur after her grand mal attacks. There is no vertigo. For a period of ten weeks, during which time she was under direct observation, her temperature, except for a rise on one day to 100.8° F., fluctuated between 98° and 99° F. Her pulse, which is strong, regular, and full, averages about 80, and her respirations are about 20. Examination of the chest is negative except for a painful precordium. The liver is palpable, but not hard or tender. Otherwise there are no findings in the abdomen excluding tenderness in the epigastric and in the right iliac regions. No evidences of trophic or vasomotor disturbances appear on the body.

Her eyes react to light and distance. There is no nystagmus. Conjunctival reflex is present. There is no reaction to the tapping of the facial nerve, and no jaw jerk. Pharyngeal reflex is present. Myoidema is present over both shoulders. The triceps reflexes are very active on both sides, while those of the lower arm are apparently normal. No response has been obtained in trying to elicit the abdominal reflex. Tapping the patellar tendons causes a marked knee jerk, equal on both sides. The reflex of the tendo Achillis is slight. There is no ankle clonus and no Babinski reflex. Only a feeble flexion response has ever been seen on stroking the soles of the feet. The anterior tibial sign is absent. Tactile sensation is of equal degree all over the body. There is no anesthesia of the oral, pharyngeal, nasal, or conjunctival mucous membranes. Deep pressure shows no anesthesia of bones, muscles, or nerve trunks. Temperature perception is apparently normal. Pain sense is acute all over the body. The muscles and bones are generally sensitive. Pressure over the crown of the head, precordium, epigastrium, the right iliac region, all along the spine, and in the lumbar region causes visible suffering. In response to questions, the patient says "everything

hurts." It could not be decided after many attempts whether there was or was not a dilatation of the pupil during pressure upon some of these tender areas. Vision, taste, smell and hearing are normal. Her fields of vision are slightly contracted, but there is no inversion of colors. Examination of the fundi shows a pink background, a well-defined disk, and blood-vessels of normal size and contour.

Our patient is very deliberate in all her movements, hesitating almost, and her voluntary movements are all weakened. The finger-to-finger and finger-to-nose tests show incoördination, but the patient has good control of her hands and she does excellent needlework. The tongue is protruded in a straight line and shows a slight tremulous motion. The movements of the facial muscles and those of the upper extremities and trunk are in no way impaired. While lying in bed the patient moves her legs about in any desired direction, and, though active movements against resistance are feeble, they are, nevertheless, present. She dresses herself, puts on her own shoes and stockings, and lifts her legs into and out of bed, but when put upon her feet she falls to the floor. She cannot stand and cannot walk, for, when she is supported, all attempts to advance a leg result in the foot being put down upon almost any place on the floor, perhaps on the sole, its internal, or its external side. The ophthalmoscopic examination was made in the evening, and after it the patient was put to bed, trembling all over. The next morning a sick neighbor in the ward informed us that our patient had had "hysterics" all that night and that in the morning *she arose, dressed herself, made her own bed, and walked to and from the toilet-room—a distance of fifty feet each way.* This latter demonstration was witnessed by the attendants, who corroborated the patient's story. Later on that morning, at our suggestion, she got on her feet with difficulty, and by holding to the wall walked the same distance in a very imperfect manner, receiving several harmless falls during the attempt, which exhibition our informants above mentioned pronounced not like the preceding one of that morning. From that time on she relapsed into the old condition

of inability to stand and to walk in which she was at first and yet remains.<sup>1</sup>

Our patient's memory is extremely faulty and her mental activities are sluggish. She attributes these defects to "all she has gone through with." She is very impressionable, undecided, and vacillating. Little things arouse her and cause her great concern.

If we exclude what was described above by another patient as "hysterics," the woman had, during the ten weeks she was under direct observation, one hysterical fit. This occurred during one of the physical examinations while we were searching for hysterogenic zones. Firm pressure over the precordium provoked it, but, after the attack was in progress, renewed pressure unhappily did not end it. It was made up of a series of fierce struggles with an imaginary foe, whom she tried to bite and strike, and was attended by wide motions and by an alternating sobbing period, all of which lasted some ten or fifteen minutes.

However, during this same period of scrutiny of our patient, she had seven severe attacks which were unquestionably epileptic. They were initiated by a harsh inspiratory groan and by a general tonic contraction, followed by clonic convulsions—all of which lasted about a minute—and then by a quiet sleep from which she was hard to arouse. There were never any wide movements in these seizures. The usual accompaniments of a grand mal attack—biting of the tongue, foaming at the mouth, intense lividity, stertorous breathing, loss of pupillary light reflex, involuntary evacuation of urine (never of feces), and an absolute amnesia of the occurrence, were present in each fit.

The examination of the urine showed the following: daily amount varied from 1300-1550 cc.; acid reaction; specific gravity between 1014 and 1018; urea was present in varying amounts from 0.8 per cent to 1.7 per cent; albumin and sugar were absent; there seemed to be the normal relation between alkaline and earthy phosphates; there were no pathologic sediments.

<sup>1</sup> Since the above was written, the patient has shown a gradual improvement, so that now, by holding to the back of a wheel chair, she can walk about fairly well.

When we come to make a diagnosis, we cannot doubt the presence of hysteria and that her astasia-abasia is of that character. The usual anesthetic signs are absent, but the hyperesthetic, motor, and mental stigmata are there. In addition the characteristics of the attack which was provoked and the history of her walking help to justify such a conclusion. On the other hand there can be no question that she has epilepsy. Attacks which we have frequently seen, each of which answers to the description given above, leave no room for doubt.

A point of general interest is implied by these last remarks. They bring up the much-hackneyed idea that the presence of hysteria does not exclude epilepsy, and vice versa. Our patient was admitted with the diagnosis, by an outside physician, of hysterio-epilepsy, and the very first attack of any kind that was witnessed by the writer was the one which he has denoted hysterical. At that time the stigmata had been found, and a diagnosis of hysteria had been made; the attack following such a diagnosis made that conclusion all the more positive and easily permitted the error of assuming that the patient had only hysteria, an inference absolutely contradicted by subsequent careful observations. This mistake of ascribing to the grand neurosis all the symptoms in a patient admittedly hysterical has been made so commonly even by careful observers that it behooves one to be ever on his guard against it.

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## THE PRINCIPLES OF COLONY BUILDING FOR THE DEFECTIVE CLASSES.

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the National Association for the Study of Epilepsy and the  
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The Colony plans seem destined to enjoy in the future very great favor in the care and treatment of the defective-dependent classes. Suitably modified it can be made to serve equally as well, the epileptic, the insane, the feeble-minded, and a large proportion of the reformatory classes.

For all these the main features of the system are the same, and it is my purpose to make a brief exposition of these only in this paper.

One fundamental error in founding most institutions is in making them too small. If we propose building a colony for one thousand insane or epileptics, we should first secure one thousand acres of the best land that can be had. An acre to each individual the Colony proposes to care for is none too much.

The plan I am about to describe can best be carried out on a large tract, though by consolidating some of the needful features named in the central group, it can be adapted to smaller plots as well.

The scheme is one of perfect simplicity, at least such has been my experience with it at the Craig Colony for Epileptics at Sonyea where I have had opportunity for observing, during a period of eight years, its practical application in the reception, care, treatment, employment and education of some 1500 epileptics of all ages, grades, types, and conditions.

The plan is this:

On the plot of land on which it is proposed to build the colony, draw four imaginary lines, letting the first enclose enough territory on which to locate these features—

The Administrative Building.

The Hospital.

The Schools.

The Industrial Buildings and Work Shops.

The Store and Supply Houses, including the Bakery.

The Library.

The Laboratory.

The Laundry.

Homes for Employees.

To these, in many instances, the configuration of the ground and the location of the railways over which supplies are received, permitting, may be added a central power and heating plant. All these things demand continuous attention, and they need to be within a small radius that makes them easy of supervision.

Of all the essential features of colony buildings, I know of none that gives greater discomfort and annoyance, besides inviting actual disaster if not provided, than that of adequate classification. This can only be secured when houses are built expressly for it.

Reference again to the diagram shows that it is desirable to locate the best class of patients nearest the administrative center. It is for this class that most can be done. They require constant attention either in the way of treatment, education, occupation, or all of these.

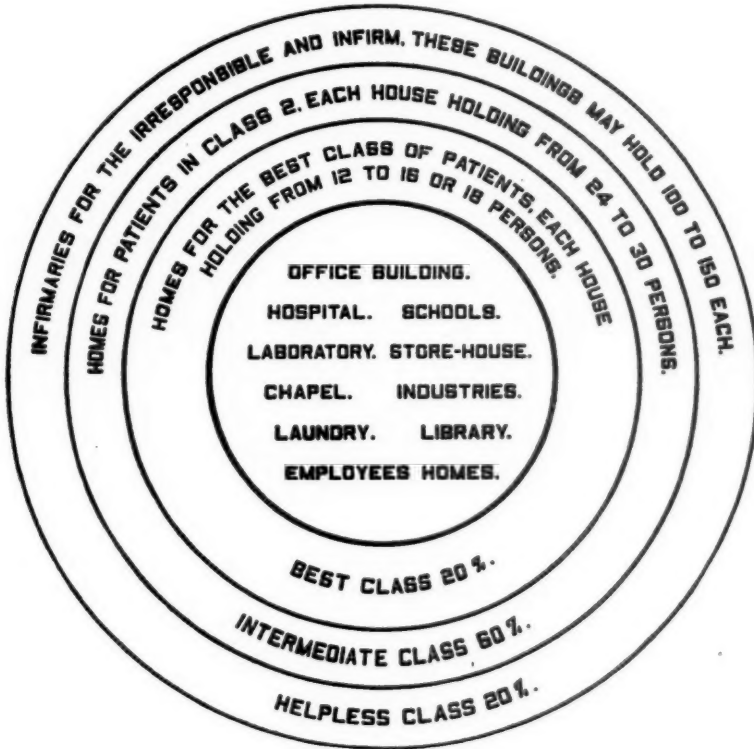
At Sonyea this class constitutes 20% of the total epileptic population. They occupy the smallest houses, 16 to 18 living in each house. They do all the work of the household save laundering and bread making, both of which are carried on in central plants for the entire colony. One-half of the patients in these small houses have single rooms, others live two in a room, while in rare instances a room is found that holds three beds.

Beyond this second circle, we find the homes of the great middle class, which, at Sonyea, comprises 60% of all in the Colony. Here the houses hold 28 to 30 persons each. These also have some single rooms, but most of the rooms are for 2 to 5 each, no room holding more than 5.

In the outermost circle, are large buildings for the perpetually infirm, the bedridden and the insane. Classification for these is of no particular value. The problem here is that of the best care at the least cost. These buildings at Sonyea will hold, when com-

pleted, 125 to 150 each, and they are located three-quarters to a mile from the central group.

It will thus be seen that the size and location of the house depends upon the type of colonists who occupy it. The better the patient, the nearer he lives to the administrative center; while the less desirable he is, the further he is removed from such center.



The plan (it is the one in use at Sonyea so far as it has been possible to adopt it) while by no means elaborate, is practical and effectual.

It is not meant, then, in founding a Colony that concentric rings of buildings should be located about the center on all sides. The diagram is presented merely to show the relationship between the patients of one group and those of another, and the relationship of them all to a common center. The center being determined,

all development may be in one general direction and may include less than one-half or one-third of the total circumference.

To do this would not interfere in the least with the principles of the plan outlined.

The percentages of the different classes given in the illustration apply to epileptics at Sonyea only. They would necessarily vary with each class cared for.

## STATUS EPILEPTICUS: A CLINICAL AND PATHOLOGICAL STUDY IN EPILEPSY.

By L. PIERCE CLARK, M. D., NEW YORK, AND THOMAS P. PROUT, M. D., NEW YORK.

(Continued from Vol. LX, No. 4, page 675.)

### MICROSCOPICAL PATHOLOGY.

Assuming that epilepsy is a cortical disease, our study will be facilitated by the following questions:

(1) Exactly what anatomical elements of the cortex are involved in epilepsy as portrayed by the status condition?

(2) In the broader sense are the cells especially concerned in the epileptic spasms sensory or motor in character?

(3) Are we to assume as a result of the frequent, long continued epileptic fits, such as are seen in status or serial spasms, the destruction of certain nerve cells or merely a temporary irritation of them?

(4) Of what relative significance are the changes in the chromatic substance of the nerve cell described by so many authors?

(5) In what light are we to regard the neuroglia hyperplasia occurring in epilepsy?

Any lesion of the brain tissue accompanying epilepsy we may expect to find most pronounced in that most decided and most acute manifestation of epilepsy, status epilepticus. This study embraces a total of seven cases of status epilepticus which died during the status period. Besides these we have examined the brains of twelve other cases, the findings in which may be put forward as confirmatory evidence. We may therefore regard what follows as bearing not only upon the pathological conditions in status in particular, but as being also of quite equal import in its general bearing upon the pathology of epilepsy.

*Methods.*—The period of time elapsing between death and the placing of the brain material in the various solutions in the seven

cases of status was in three cases one hour and in the remaining four, two, three, five and six hours respectively. In the twelve other cases the time varied from two to eleven hours. In all except two cases the autopsies were done within seven hours. The brain tissue was fixed in absolute alcohol and formalin, the former being used for the study of the nerve cell and the latter for the study of the neuroglia.

In order to stain well all the cells of the cortex, it is essential that the material be perfectly fresh. If more than seven hours elapse between death and the placing of the material in the fixing solution, many of the cells are apt to show signs of decay.

The Nissl method was used for the study of the nerve cells and the Robertson and Weigert methods for the study of the neuroglia. The sections for the Nissl method were made without imbedding the tissue in celloidin. Blocks of the hardened tissue were attached to pieces of wood by means of stiff gelatine, and when they had become thoroughly attached by immersing in alcohol for a time, the sections were made. All the sections were 10 mm. or less in thickness.

In staining, the best results were obtained by a process of over-staining, subsequent decolorization being relied upon to bring out the cortical elements. This was accomplished in the following manner: The section was attached to the slide by allowing the alcohol to evaporate; it was then covered with the methylene blue solution and allowed to stand for about an hour; the slide containing the section and stain was then placed over a boiling water-bath so that the steam came into contact with the under surface of the slide and in this manner the latter was heated for two or three minutes. The slide was then removed, allowed to cool, the stain poured off and the moisture wiped from the under surface. It was then placed in a bath of anilin oil, a 10% solution in absolute alcohol. After this treatment the section is so much overstained that the decolorization process is slow and usually takes from three to fifteen minutes. The section is then thoroughly washed in xylol for five or ten minutes. The permanency of the stain is materially aided if the anilin oil is thoroughly washed from the section. The section is stained quite evenly and all the cortical elements are well defined. This method has the further advantage of uniformity.

*Microscopical Appearances.*—The general microscopical appearances presented by the seven cases of status were practically the same. In the description that follows, no case will be specified unless it differs from the others in some particular. In the twelve other cases of epilepsy examined the conditions observed differ from those found in status only in degree.

The most striking condition in all the status cases was the marked chromatolysis. This involved all types of the cortical cell, but was most marked in the large pyramidal cells of the third layer. Groups of these cells presented no chromatic granules at all, or but a few traces of chromatic substance in one portion of the cell. (Fig. 10). In many other instances, the body of the cell presented a diffusely stained appearance, no differentiation of the granular mass having taken place. In still others the chromatic substance of the cell appeared finely granular and was diffusely scattered throughout the cell body. The chromatic changes in the large ganglion cells were striking and characteristic. In many instances the body of the cell appeared greatly shrunken; in not a few the cell presented the appearance of a much distorted mass of protoplasm and the spindle-shaped chromatic bodies were reduced to mere thread-like filaments. In other words, the chromatic bodies had practically disappeared, leaving the cell framework (the ground substance in which the granules are contained) practically bare. Figure 6 shows this condition. The small pyramids of the second layer often showed a complete absence of chromatic substance. For this reason some care was necessary in staining the cells in order to bring out the different anatomical structures. The same was true of the smaller cells of the fourth layer. In very many instances nothing in the way of chromatic substance was left in these cells except a few fine granules.

We can not determine that the chromatolysis is uniformly one of any of the frequently described forms. In fact some of the cells presented what can only be characterized as a decided general chromatolysis. I refer to certain groups of cells of the third layer such as shown in Figs. 9 and 10. In some of these cells there remained no vestige of the chromatic substance; the cell framework was absolutely denuded, leaving nothing but a dimly outlined protoplasmic mass greatly vacuolated (Fig. 9, b). In still other cells, especially those of the smaller type, the only vestige of



chromatic substance remaining was found in the so-called "axonal hillock." In a few of the large pyramids the chromatolysis seemed to be of a distinctly central character. While the evidence seems to point to a central chromatolysis which in the more extreme examples presents a completely denuded cell framework, still we are not prepared to say that this is the form of chromatolysis always presented in epileptics who have died during the exhaustion of status. The type of chromatolysis seems to vary to a considerable extent in the different types of cells.

*Vacuolation* of the protoplasm of the body of the cell is presented as a direct sequence of the chromatolysis, and is most marked in those cells presenting an extreme degree of chromatolysis. As is well known, the chromatic granules are contained in a lightly staining protoplasmic reticulum. When, therefore, these granules for any cause disappear from the body of the cell, they do not leave behind a homogeneous protoplasmic mass, but a mass reticulated and vacuolated. In groups of cells of the third layer the vacuolation of the protoplasm was often extreme and especially marked in all the status cases (Fig. 9). The small pyramids of the second layer often presented many small, round vacuoles in the rim of the protoplasm surrounding the large nucleus characteristic of these cells (Fig. 2). Extreme degrees of vacuolation presented themselves in the axonal extremities of many.

Some points of chief interest centre in the nucleus of the cells throughout the cortex, but more especially in the nuclei of the small pyramidal cells of the second layer. The nucleus of these cells was in most instances swollen and granular and often filled out the cell completely (Fig. 4). It was rarely possible to distinguish the nuclear membrane, and when a trace of it was visible, it showed but an erratic outline (Fig. 2). In the cells of the third layer and the large ganglion cells the nucleus often appeared extremely distorted as shown in Fig. 6. In this cell, portions of the nuclear membrane are still visible, but are extremely distorted and irregular, the whole nuclear mass being small for a cell of this type. Many cells in the third layer failed to show any nuclear membrane and the nucleus was only definable as a more lightly stained portion of the cell, centrally located. In many instances the limitations of the nucleus were hard to define, it having almost

disappeared as an anatomical structure in the cell. This is well shown in Figs. 7, 9 and 10. Fig. 9 represents a group of large pyramidal cells in which nearly all trace of the nuclei has disappeared. The drawing represents the relative position of the cells of the group as presented in the cortex. The same condition, not quite so far advanced, is shown in Fig. 10. Another striking condition of the nucleus, where definable, was its granular appearance. This was especially marked in the cells of the second layer and is shown in Figs. 1, 2, 3, 4 and 5. No karyoplasmic network was definable in the vast majority of these cells, but a lightly stained granular mass occupied the nucleus in its stead, as is shown in the figures. There was very little deep staining of the nucleus. In fact, unless one observed the nucleus very carefully as regards its staining qualities, very many would have suggested a comparatively normal state. The normal karyoplasmic network, however, was in no instance definable, it having apparently deteriorated into a finely or coarsely granular substance. As a direct sequence of this condition the nucleolus was with great frequency found displaced to one side of the nucleus as shown in Fig. 2. This condition was extremely common in the cells of the second layer, in which type of cells also the nucleolus was found in all stages of abstraction from the nucleus as shown in Figs. 1, 3, 4 and 5. Very many free nucleoli were found scattered throughout the cortex and their relationship to any particular cell was often impossible to determine. Such nucleoli were often surrounded by a fleecy mass of nuclear substance as shown in Figs. 5 and 9. This condition (nucleolar abstraction) was so frequent, especially in the cases of status, that it was very striking. We have found more than sixty abstracted nucleoli in a single section from the motor cortex, the surface area of which was not more than one square centimeter. Upon investigation it was found that this was an artefact produced by the action of the knife in making the section. It was found that the nucleoli were withdrawn from the cell by traction in a given line, and that this line followed the direction of the knife in making the section in every instance. The reason for the unusual frequency of this artefact will appear when we reflect upon what has already been said. The disappearance of the nuclear membrane and the destruction of the karyoplasmic network have been pointed out. In other words,

the karyoplasmic network which normally holds the nucleolus in its place, has been destroyed and the nucleolus remains a body perfectly free within the nucleus and is readily displaced by any force coming into contact with it; the knife, consequently, drags many of these loose nucleoli from the cell in making the section. We have recently examined some sections of normal human brain with a view to determining the relative frequency of this artefact under normal conditions. The case from which the normal brain material was taken was one of accidental death. The material was placed in absolute alcohol within two and one-half hours after death and was mounted, cut and stained with exactly the same instrument, and as nearly as possible in the same manner as the epileptic material. The sections were the same thickness. Thirty-two sections were examined, a mechanical stage was used and every portion of each section was seen with an immersion lens. This work occupied several days and at the end of that time we had found fourteen examples of nucleolar abstraction in the thirty-two slides of normal brain; or, to put it concisely, this artefact was one hundred and thirty-seven times more frequent in the sections from these cases of status, than it was in normal brain material.<sup>1</sup>

<sup>1</sup> We have recently examined two additional cases of status (L. H. and N. H. J.). In the case of L. H. the phenomenon of nucleolar abstraction was very pronounced. In a single section from the motor cortex, covering not more than one and one-half square centimeters of surface, we found one hundred and twenty-one examples of nucleolar abstraction. In this case the autopsy was done about one hour after death and the tissues were rapidly fixed and hardened in absolute alcohol. In the above count of the abstracted nucleoli none were included except they were entirely without the cell. The slide was selected at random from a large number. Abstracted nucleoli were found throughout the motor cortex but no effort was made to count them except in the above mentioned slide. The vast majority of the nuclei of the nerve cells throughout the cortex were very granular and some were deeply stained. In some instances the intranuclear network appeared greatly swollen. The chromatolysis was very pronounced, the granules having disappeared from many of the cells, nothing remaining except a more or less vacuolated mass of protoplasm.

In the case of N. H. J. no attempt was made to count all the examples of nucleolar abstraction in a given section, but this artefact was quite as frequent as in the former case. For example, in a single section from the motor cortex, forty-nine examples of nucleolar abstraction were found in

Two questions immediately suggest themselves concerning the distribution of the lesion. Are any particular areas of the cortex implicated? In epilepsy of the Jacksonian type are the lesions focal in character? The conditions just described are found in the motor cortex and are quite evenly distributed through it. In the case of F. D. in which we had reason to suspect a lesion in the right face area, we were unable to demonstrate that these phenomena were any more decided in this portion of the brain cortex than in some cortical areas of the opposite side. We can not as yet give an opinion regarding the relative frequency of these lesions in the motor cortex as compared with other portions of the brain.

We have already called attention to the extreme degree of chromatolysis and to some evidence of destruction of the large pyramidal cells of the third cortical layer as illustrated in Figs. 9 and 10. It remains to speak of further evidence of the same thing in the second cortical layer. One of the most remarkable features of the sections from all portions of the motor region in all the status cases, (especially well marked in the case of C. R.) was a broadening of the outer cortical layer. This broadening of the outer cortical layer did not appear as an excrescence interrupting the even continuity of the cortical arc, but seemed to be entirely at the expense of the second cortical layer. Considerable areas presented themselves in which the cells of the second layer were comparatively few, the outer layer seeming to encroach upon the layer below.

Another very striking evidence of a destructive lesion in progress among the cortical cells, was the invasion of the cortex by leucocytes. This condition was pronounced in all the cases of

passing over the entire depth of the cortex fourteen times with an immersion lens. Sections from various portions of the brain were examined and abstracted nucleoli were found with greater frequency in portions of the motor cortex than elsewhere. The predominance of this condition in the motor cortex may be accounted for by the extreme activity to which these cells have been subjected for a considerable period and the exhaustion consequent upon such activity. The fact, however, that this condition was not confined to any one portion of the brain, strongly suggests the activity of some substance which, from the nature of things, is operative upon the whole brain structure, as the ultimate underlying cause of these cell changes.

status, and was well marked in the other cases of epilepsy. It was especially marked among the cells of the second and third layers. Among groups of degenerated nerve cells the leucocytes were found to be clinging to the remains of the protoplasmic mass as shown in Figs. 9 and 10. In Fig. 9 it will be noticed that the cells in that group are so much degenerated that it is difficult to make out the different anatomical elements of the individual cell. Two present leucocytes (a) in immediate proximity, and in both instances the leucocyte has greatly distorted the remnants of the nerve cell. In Fig. 10 the cells appear less degenerated and four leucocytes are seen in the neighborhood. One of the nerve cells presented a large mononuclear leucocyte superimposed. Pictures like these were especially frequent in the status cases. The leucocytes present were almost without exception the large and small mononuclear cells—cells with marked phagocytic properties.

The smaller vessels of the cortex presented no lesion. In two of the cases of status there were numerous punctate hemorrhages in the cortex. These were small and while they had destroyed a certain amount of nerve tissue, nevertheless the permanent effect, had recovery taken place, would probably have been so slight as to have escaped notice.

*The neuroglia* was studied in seven of the cases, two being of status. The conditions found varied a good deal. Here again the broadening of the outer cortical layer was a striking feature of the section, but the reason for this appeared in the neuroglia overgrowth, which in some of the cases was very decided. At some portions of the cortical arc the neuroglia presented itself as a dense fibrillary mass as shown in Fig. 8. Here the neuroglia overgrowth was so decided as to present a positive excrescence. This was unusual. Many of the neuroglia fibres extended deeply into the cortex, more especially where the cells of the second layer appeared to be few in number.

In the subcortical areas also, the neuroglia fibres appeared to be greatly increased and encroached somewhat upon the cells of the lower cortical layer. The neuroglia nuclei varied much in size, shape and staining qualities. Many were extremely irregular, as shown in Fig. 8, and were arranged in groups of three and four. A few were deeply stained. Not a few others were unusually

large. The great variability of the nuclei in size, shape and staining qualities, suggests a state of active proliferation.

#### SUMMARY.

We may summarize the pathological changes found in status epilepticus and in epilepsy in general, as follows:

The first discoverable lesion appears in the nucleus, and this is the organ of the cell first and most seriously involved. The nuclear membrane and the karyoplasmic network disappear and the karyoplasm becomes finely granular, the direct result of the destruction of the karyoplasmic network. In consequence, the anchorage of the nucleolus is destroyed, and it becomes a free body within the nucleus. In the process of making the section many of these free nucleoli are abstracted from the nuclei to which they belong and appear in the section entirely outside of the cell—nucleolar abstraction (Figs. 1, 3, 4 and 5; Photomicrographs 1 and 2). Many nucleoli are greatly displaced within the nucleus (Fig. 2).

The following secondary changes take place in the order named:

The granules of the chromatic substance disappear from the cell body, leaving behind a dimly outlined cell framework. All trace of the nucleus finally disappears and nothing remains of the nerve cell but a shapeless mass of vacuolated protoplasm. Many neurons disappear from the cortex, especially from the second and third layers (Figs. 7, 9 and 10).

The cortex becomes invaded by leucocytes, the chief mission of which is probably the removal of the debris of destroyed nerve cells and poisonous products. The variety of leucocyte found in the vast majority of instances is a cell with marked phagocytic properties, the large mononuclear (Figs. 9 and 10).

The neuroglia proliferates to take the place of the destroyed nerve cells. This proliferation is most marked in the outer cortical layer and is largely proportional to the duration and severity of the epilepsy. The destructive process especially involves nerve cells in the second layer, and the third layer in lesser degree.

*The significance* of these changes is rather important. Speaking broadly, the epileptic fit is a destructive process. We can hardly have observed the gradually increasing dementia of the epileptic



without having thus concluded, regardless of the pathological findings; however, the pathological changes found in the cerebral cortex, together with the life history of the epileptic, confirm this fact definitely. The especial involvement of the nucleus of certain of the cells of the cortex is a fact of great importance. Biological facts teach us that "the formative power of the cell centres in the nucleus, and it is therefore to be regarded as the especial organ of inheritance;" that "it plays an essential rôle in chemical synthesis;" that "digestion and absorption of food, growth and secretion cease with its removal from the cytoplasm;" and that "fragments of protoplasm deprived of the nucleus die." (Wilson, Verworn). When, therefore, morbid processes especially attack the nucleus, the portion of the cell essential to its life becomes jeopardized. From the foregoing, we are justified in assuming, not only that the essential poison in epilepsy is a nuclear poison that shows a special predilection for certain delicately constituted cells of the cerebral cortex, but that the chromatolysis which appears as a widespread condition, particularly in all cases of status, is a nutritional change, brought about chiefly by the jeopardization of the nucleus, which is known to preside over the nutritional functions within the cell.<sup>3</sup> This assumes that "the chromatic bodies constitute surplus nutritive

<sup>3</sup> Dr. J. George Adami, in a recent article on "The Causation of Cancerous Growths" (*British Medical Journal*, March 16, 1901) voices the modern view regarding the role of the nucleus in the cell, in the following words: "We are recognizing more and more that the nucleus plays a controlling part not merely in cell division but also in the functions of the cell. With activity the nuclear chromatin becomes used up and discharged into the body of the cell, there to combine with other substances to build up prezymogens and other bodies which are eventually discharged as the specific secretion of the cell. This being the case, we can readily understand that the higher specific functions of the cell cannot be carried on by a nucleus whose nuclear material is being utilized to its fullest in mitosis. The process of cell division and the performance of the higher functions of the cell are incompatible and the cell engaged in the active performance of its special function cannot undergo division." In status, the higher functions of the cell have been in abeyance for a considerable period. Since the nucleus has to do with the important processes of the digestion and absorption of food product, growth and secretion, it follows that the suspension of these functions for any considerable period is a serious matter, and cannot but result disastrously.



products of the nerve cell or represent potential energy in the nerve cell." Ewing's review of the literature bearing upon this point, and his own personal study of this subject would seem to warrant the conclusion quoted.

We have previously mentioned the probable phagocytic mission of the leucocytes that are found to have invaded the cortex. This is a fact of great significance. Phagocytosis occurs as one of the sequences of the action of toxic elements upon certain cells. In our cases of epilepsy we have to look upon the leucocytes found in the cortex as phagocytes.

The question as to whether or not the neuroglia cells ever become phagocytic is suggested in the recent work of Mallory. He has shown that many cells of endothelial type and origin become markedly phagocytic in response to the action of certain toxic substances. Various authors, many of whom were noted at the outset of this study, have described the neuroglia proliferation in epilepsy. We have found it in greater or lesser degree in all the cases examined, and believe that, with improved methods and technique, it will be demonstrated in every case of epilepsy of any considerable duration. Inasmuch as cells proliferate in response to the action of toxic or irritating substances, it seems right to look upon the neuroglia proliferation in epilepsy as evidence of the underlying toxic character of the disease.

There is a secondary reason for the neuroglia proliferation in epilepsy. The nerve cell once destroyed is never replaced. The vacancy caused by its disappearance must be taken by cells capable of proliferation. The great increase in the neuroglia in epilepsy occurs therefore in response to (a) the action of toxic elements upon the neuroglia cell, and (b) as a direct sequence of nerve cell destruction.

CONCLUSIONS.—In view of all the facts, how may we answer the points suggested at the outset of this section?

(1) If the especial involvement of any particular type of cell is indicative of the essentially sensory or motor character of epilepsy, it would seem that Prus was correct in concluding that epilepsy is essentially a sensory phenomenon, as the cells of the second layer and the third layer, in lesser degree, are especially involved.

(2) The essential lesion of epilepsy pertains to the nucleus of certain of the cortical cells and is of such nature as to seriously jeopardize the cell for considerable periods and ultimately cause its destruction.

(3) The chromatolysis in epilepsy is a nutritional change brought about by the nuclear toxemia, since the nucleus presides over the process of elimination, absorption and digestion in the cell unit.

(4) The role of the leucocyte in the cortex after severe epileptic explosions is most probably that of a phagocyte.

(5) The neuroglia overgrowth in epilepsy is one of its more remote sequences and probably occurs in response to toxic irritation.

#### CLINICAL INTERPRETATIONS OF THE PATHOLOGICAL FINDINGS.

It is evident from the foregoing that status epilepticus is the severest type of epilepsy. We would therefore expect the underlying pathology in both to be the same; mild in epilepsy proper, severe and marked in status. These expectations are fully substantiated in this work. We are warranted, therefore, in drawing some general clinico-pathological conclusions from the histopathological data.

Epilepsy is primarily a sensory phenomenon with a motor expression. These studies upon the human cortex in epilepsy are quite in accord with experimental data so carefully undertaken by Prus, Hering, Bischoff and others. Epilepsy then in its totality may be designated a highly organized sensori-motor reflex of the cerebral cortex. The therapeutics of epilepsy also contributes to the same conclusion. The bromides, which are the most efficient agents of sedation in epilepsy, act primarily upon the sensory type of cells of the cortex, the afferent side of this complex reflex arc. They apparently aid in cerebral inhibition by forming a more stable chemical compound in those cortical cells than can be maintained by the highly organized nitrogenous elements in unstable degenerative equilibration and thus reduce the number and intensity of the afferent impulses to the motor cells whose activity they inhibit both in health and disease. The symptoms in acute and chronic bromide poisoning are quite identical to the immediate and remote effects of epilepsy itself. The bromides are consequently

often burdened unjustly as causing physical and mental symptoms for which the epilepsy alone is responsible. Inasmuch as the bromides are but artificial means in producing cerebral equilibration, other more natural aids must be employed to maintain their temporary effect in bringing about a cure of the disease, hence the importance of accessory treatment being considered in the broadest light possible. The sensory character of epilepsy is also shown in that the bromides are of but little avail in cerebral affections largely motor in type, such as myoclonus, chorea, paralysis agitans, etc. The absence of a constant lesion or abnormality in the motor cells aside from chromatolysis and exhaustive shrinkage, even after a life long epileptic career ending in fatal status, should have influenced us long ago to study other cortical cells than those so purely motor in function, for the histo-pathological lesion in the epileptic brain. A point of therapeutic importance is that the lesion is a diffuse one and affects the entire cortex. It is not focalized to the motor region. It probably generalizes itself over the entire cortex as soon as once thoroughly established. The lesion may and probably does have a point of area of maximum intensity in certain cortical areas, although microscopic proof of this clinical surmise is not yet at hand. The probable coincidence of sensory (aura) and motor symptoms in some one part of the Rolandic area largely explains the happy results of early surgical treatment in the absence of an hereditary predisposition. The prime importance in studying sensory rather than motor symptoms in the epileptic discharges is indicated by the fact that an order of muscular march in the fit demonstrates solely the successive order of spread or discharge in the motor areas, which remains almost invariably the same for years, yet the disease steadily undergoes important modifications which are shown in a continued destruction of cortical elements of the sensory type.

The aura (sensory), however, and in its absence the degree and character of mental disturbance and deterioration, gives a fair index in the course and prognosis of the disease. Practical methods of measuring these by physio-psychological means would be of the highest value.

The ultimate disappearance of the involved cortical cells is the most serious clinical phase of its pathology. It explains many of the permanent symptoms of the disease, especially the slowness,

awkwardness and incoordination of bodily movements. In many instances this disorder of motility amounts to a paralysis in effect, particularly after recovery from severe status epilepticus. The local and general exhaustion after local or general fits are true exhaustion paralyses in type, but the chronic slowness (and exaggerated reflexes), awkwardness and incoordination seen in long standing cases are really of the sensory type. In such the damage or loss of sensory elements not only *permits* cortical motor cell overaction as seen in the fit, but it also leaves these motor cell elements *uninformed* of the normal nature and character of movements required. Analogous explanation holds good for tabes, the ataxia of so-called paralytic type (Jackson).

The mental changes (dementia in type) are commensurate with the simpler sensori-motor changes attending the cortical destruction, and are to be explained in the same manner.

The missing links of our knowledge of epilepsy are the pathogenic agents and the organic anomaly of the cortex which constitutes the predisposition; these two etiological factors still hold the mystery of frequent relapses. We believe, however, this study has narrowed the gap between the terminal gliosis and the toxic and autotoxic agents of the disease pathogenesis which in turn largely concerns cell changes and those especially of the nucleus. We have not conducted this study without making some surmises concerning the pathogenic agents of epilepsy. They appear to us to be comprised in a vast number of toxic and autotoxic agents. However, the hereditary instability of the cerebral cortex is the real basis of the causation of epilepsy. This consists most probably in physio-chemical anomalies of certain cortical cells which permit of a faulty physiological equilibration of the nucleus and its nutritional control over extrinsic and intrinsic cell activity. Each repetition of the seizure phenomenon of epilepsy increases and accentuates the abnormal behavior of cell function, and in time perverts the intrinsic nutritional integrity of the cell itself, and its functions as a biologic unit of the cerebral cortex soon ceases. This in turn tends to perpetuate the instability of the brain as a whole, and stirs in train a series of degenerative changes whose logical termination is fatal status epilepticus.

Investigation must now look to physiological chemistry to determine what agents will produce the histo-pathological cell

changes of this study of status. It must be undertaken along all allied lines of research as that of insanity; both problems deal with the structure and function of cytological elements, of whose life activities in health and disease our real knowledge is exceedingly meagre.

Finally, we have in this pathological study adequate evidence for the present successful empirical treatment of the epilepsy in which the individual is given first attention. It consists largely in overcoming hereditary tendencies, excluding toxic and autotoxic agents and in giving the patient a thoroughly detailed plan of diet, exercise, recreation, baths and sedatives. The importance of the earliest treatment cannot be too thoroughly insisted upon.

### THE TREATMENT OF STATUS EPILEPTICUS.

#### PROPHYLAXIS.

The prophylactic treatment of the status is of great importance. If serial attacks are presented in the history, sedatives must be employed to check the periodicity of attacks. This can be accomplished by giving bromides at the threatened periods in sufficient quantities to at least partly suppress the convulsions. In this way one may spread out or prolong the period of discharge, and thus the exhaustion is lessened for the particular period.

In case there is a gradually increasing paroxysmal frequency, bromides in high dosage must be employed; any sudden decrease or withdrawal of bromides may precipitate status; a large per cent of status cases in general practice are induced by such indiscretions. The long account of suppressed paroxysms is then paid for by a status condition which frequently terminates the patient's life. Cases in which there is a sudden and prolonged suppression of attacks need careful watching, as they constitute a certain per cent of the status statistics. For these cases the emergency prescription for an incipient status should be in readiness. The formula for the emergency prescription has been used with unusually good results. It was first used by us in 1896, and in a slightly modified form it has been constantly employed in all cases of threatened status. The formula and directions for using the same are:

R	Tr. Opii Deod.....	M. v.
	Potass. Bromid.....	Gr. xxv.
	Chlor. Hydt. ....	Gr. xx.
	Liq. Morph. Sulph. (U. S.) .....	3 i.
	Sig. One dose; repeat in two hours if necessary.	

An explanation of the efficacy of this prescription might be made on the following principle: The chloral and morphine are the first to act in their respective order, the chloral as a sedative upon the vascular system and especially upon the blood supply to the brain; the morphine as a sedative on the nerve cells. Following their immediate combined action we obtain the slower and more permanent sedative effects of the bromide and opium upon the cerebral centers.

One experienced in the care of epileptics becomes watchful for the possible occurrence of status, and consequently employs methods in the general treatment of the disease which will lessen the impetuosity of a threatened status period. In chronic epileptics in whom serial or pseudo-status is liable to be of frequent occurrence, the bromides need to be given between periods with the greatest caution, in order that the full sedation of the salts may be used effectually at the status crisis; in other words, we must hold a certain reserve for the paroxysmal climax. The employment of all things favorable to the general amelioration of the epileptic state should be the general rule in prophylactic treatment of status.

*The surgical treatment of status* is relatively unimportant; status of idiopathic grand mal cannot be successfully treated by any known surgical procedure, either from clinical or pathological considerations, and therefore operative interference is not justifiable in idiopathics. Trephining on the basis of the late revival of the old theory,—whose ghost has just been laid again,—that the status is the result of an increase of intracranial pressure has not alleviated the convulsions of the status condition to any appreciable extent. However, trephining for the status epileptiformis, caused by a recent trauma, is imperative and its early adoption is attended by the most brilliant results, but surgical treatment of this form of epilepsy should never be postponed until the status develops. Operation should be undertaken as soon as the influence of the trauma can be determined. The



status of old organic lesions, such as the old infantile cerebral palsies, is hardly operable but should be considered in the class of idiopathic epilepsy as far as treatment is concerned.

It may appear from the nihilistic standpoint of this thesis that status being but a climax of epilepsy proper is therefore not preventable until we are able to modify the underlying tissue changes in the cerebral cortex. However, many status periods are aborted by proper treatment of the epilepsy as well as the status itself. Not only may the life of the patient be saved, but the patient may recover from the epilepsy. The present mortality from status can be further decreased to a marked extent by resorting to prompt treatment in the convulsive stage. If the seizures cannot be entirely controlled in all cases, it is generally possible to lessen the paroxysmal frequency and thus conserve the organism from acute exhaustion, the most fatal sequence of status. Indeed the condition of acute exhaustion stands in the same sequential relation to death by status as status does to epilepsy proper.

After the first five or six paroxysms, the emergency prescription heretofore mentioned should be given. In the fifteen or twenty minutes necessary for the remedy to take effect, chloroform should be employed to immediately lessen the severity and number of paroxysms. This anesthetic must be administered to the point of complete surgical anesthesia to be effective in controlling the convulsive stage. *It must always be borne in mind that that which is indicated for the convulsive period is contraindicated for the subsequent stuporous stage, therefore antispasmodics need to be given with due caution.*

Delasiauve has recommended general and local blood letting, drastic cathartics, ice to the head, and quinine by rectum. Bourneville and some other French writers claim to still hold this plan beneficial. Acting upon the theory that venesection lessens the toxicity of the abnormal accumulation of waste products (toxins) in the blood, the plan of blood letting is a good one. Venesection in status finds its greatest value when employed in plethoric epileptics. Status only too frequently occurs in the feeble instead of the robust, only one-third of our cases were in normal bodily vigor at their status periods. A better practice is to venesect and inject saline solution. This method, as it doubly reduces the toxicity of the blood, deserves first place after the emergency



treatment of status has been tried and found inefficient. As for venesection for the supposed increased intracranial and arterial pressure, the condition has no basis in fact; on the contrary, Fere has shown that intracranial and arterial pressure is markedly diminished in status, and Nornatsky and Arndt have recently conclusively demonstrated by their elaborate experiments upon single, serial and status convulsions that the increase of intracranial pressure is only a result and not a cause of epilepsy.

If drastic cathartics are given early they may be of use; in the later stages they are brought into action with great difficulty. The application of ice to the head in the convulsive stage is to be discouraged, especially so as the coma becomes continuous. It has its advocacy in the early belief that status was a meningitic affection. Ice to the head may be employed in convalescence, as it appears to lessen the post-status delirium and often contributes to the comfort of the patient by lessening the headaches and the many morbid cephalalgic sensations. Ice applications to the spine have been highly recommended by Gowers and Brown. Bourneville recommends ammonia inhalations for the convulsions; large doses of bromides (12 to 16 gm. daily) and camphor. The efficacy of this treatment rests entirely upon the bromide. The administration of camphor and ammonia inhalations is generally attended by negative results. The subcutaneous use of bromides in status is to be highly commended. After extensive trials ranging from a 10% solution to that of full saturation of the salt we have determined that subcutaneous injection of bromides should not be given in a stronger solution than 10%; even then in about one-third of all cases abscesses will form; care must therefore be exercised to give the salt under strict antiseptis and in parts where abscesses can be most easily treated in convalescence. The injections are extremely painful and should only be given when coma is profound and only when the convulsive stage is well advanced. Gentle friction and moist heat at points of salt injection favor absorption and discourage abscess formation and necrosis. This plan of giving bromides is especially recommended by Wildermuth and has been favorably commented upon by many others. If hypodermic medication of bromide is to be of service 120 grains should modify the status symptoms in the course of two or three hours. If this amount does not appreciably

affect the convulsions, no more salt should be given by this method; sodium bromide is the best salt to administer in this way.

Asafoetida, belladonna, bromethyl and atropine have been used by Bourneville without gaining any good results. Belladonna, although of signal value in epilepsy proper, has too feeble antispasmodic properties to be of any great service in status. Bromethyl is sometimes effective, especially in incipient status. Atropine should only be used in respiratory failure in the stuporous stage. Crichton-Browne introduced amyl-nitrite and based its favorable action in the status of epilepsy upon the fact that many of the status symptoms were due to the asphyxia of the brain and that the use of this drug should relax the arterioles and favor the circulatory return. However true the theory may be, we have never seen any benefit from its administration in the severe grand mal status, but have observed slight benefits from its use in serial psychic epilepsy, its action here being due to an alteration in the cerebral circulation from increased cardiac activity and dilation of arterioles. The increased blood supply in turn excites increased inhibitory control of the sensory cortical cells. On the other hand, cardiac depressants and vaso-constrictors such as ergot may have a similar action. Negative and positive states of cerebral dynamics may give rise to an equal amount of cerebral inhibition. These alternating sensory states due to the modification of the circulation are well known to modify the milder forms of epileptic paroxysms. Since Crichton-Browne's advocacy of nitrite of amyl in status, McBride, Berger, Jolly and Bourneville have advised against its use in status epilepticus.

Solwith has injected Bonjeon's ergotine in several of his cases with benefit, but Browne and a number of others, have reported against its use. At best, ergotine is but a feeble spinal depressant and on rational grounds the status cannot be beneficially modified by the drug. Binswanger has recommended narcotics on rational grounds, while Browne regards them as pernicious. Combined with other drugs such as the bromides they are of distinct advantage. We have employed them in the convulsive stage of several status cases with marked benefit.

In the past few years amyl hydrate has been successfully used by Wildermuth in six cases. While this drug is uncertain in

its therapeutic properties, yet it has no marked depressive action upon circulation or respiration and may be tried in the convulsive stage of status. The following list of drugs not before mentioned in this section have all been tried and each one has its special advocate. Ether, chloroform, chloral hydrate, sulphate of morphine, hydrobromate of hyosine, salicylate of Physostigmine and hydrobromate of cocaine. Ether and chloroform are given with a view of immediately checking convulsions by paralyzing motor centers; they are only of temporary value, the better one by far being chloroform. Its inhalation should be undertaken in the early part of status, as it is too depressing upon the heart when there is much exhaustion from a large number of attacks. Ether may be administered in prolonged status as it is devoid of severe depression on the circulation and respiration. The attacks only disappear from the use of either when given to the point of surgical anesthesia, and the seizures return before the consciousness is regained. As heretofore stated, anesthetics should never be employed except when death is imminent in convulsions, or until slower drugs, such as chloral hydrate and bromides may have time to be taken into the general circulation. When it is injudicious to employ anesthetics to the surgical point, they may still be used to modify the severity of paroxysms, especially in Jacksonian seizures, or status unilateralis following organic brain disease.

The use of chloral in status has many advocates and deservedly so, but when it is given in advanced status in 60 to 90 gr.-doses uncombined with other drugs, it is of doubtful value. Large doses of chloral uncombined with cardiac stimulants should always be given with extreme caution in advanced status. 40 grains of potassium bromide and 30 grains of chloral by rectum, to be repeated in 3 hours if the convulsion continues, is one of the routine treatments which we have employed. Chloral must be given early and before cardiac failure is imminent. At the first indication that the sedatives are becoming effective in controlling the convulsions, the dose of the drugs should be modified accordingly. Hypodermics of  $\frac{1}{4}$  of a grain of morphine combined with the foregoing sedatives is often desirable, but the action of morphine given alone is too uncertain to be of signal value. If the convulsions produce great asphyxia and cyanosis, inhalations of oxygen may be given with advantage: it aids the circulation, respiration and urinary secretion.

10% sol. of bromine, in an emulsion with the oil of sesamum, is an excellent sedative for the status, given by rectum, but to be effective in severe status it must be given in large amounts. Its sedative action is about one-half that of the bromide salt, volume for volume. The after toxicity from the bromine sedation is much less than from the bromides but bromide is much slower in action than the bromide salts and, as we have already pointed out, the early sedation in the convulsive stage is of paramount importance.

Chloretone has been used in status to some extent in place of chloral, as the latter is very dangerous to weak hearts. However, chloral is largely efficacious in status because of its marked sedation on the cerebral circulation as well as on the brain itself. Chloretone not having this sedative power over the circulation is much less valuable than chloral; besides it produces on its own account in comparatively small doses a toxicity and a resultant delirium most pernicious. Chloretone cannot supplant chloral in the treatment of the status epilepticus.

Innumerable other remedies for a time have had their place in status treatment, but they never have seriously endangered the high regard in which chloral and bromide have been held. Status epilepticus is a state above all others in which weak and ineffectual compounds must be cast aside, as the time element in gaining control of the patient's disease is of paramount importance. Chloral ranks first just as preeminently in the treatment of the convulsive stage of status as bromide does in the medication of epilepsy proper.

To summarize our plan for the treatment of the convulsive stage: The "emergency prescription" should be administered after the first six attacks, either by mouth or by rectum; later, if status continues, use chloroform and continue bromide and chloral by rectum, or hypodermics of bromide. *Only so much sedation must be employed as may be necessary to control the severity and number of convulsions.*

THE TREATMENT OF THE STUPOROUS STAGE of status largely depends upon the severity and proper treatment of the convulsive stage. The treatment must be supportive. The heart and lungs need close attention, not only for the acute exhaustion entailed by the previous convulsive period, but for complications that are

liable to occur in the lungs. Alcohol should be used freely during the exhaustive state of coma. Although the cold bath will favorably alter the fever curve for a time, its action is but temporary and of no real lasting value. Undoubtedly, the prolonged action of the sedatives given in the convulsive state is in no small degree responsible for the severity of the coma, therefore as a rule drugs counteracting the antispasmodic should be given in the stuporous stage. The effects of chloral are quite easily overcome by whiskey, digitalis and strychnia, but the slower and more permanent sedation of bromide is not so easily counteracted. As soon as the exhaustion of intestinal peristalsis is recovered from sufficiently, diuretics and cathartics may be given. The arterial pressure which is always much lowered in the stuporous stage, should always be increased by hypodermoclysis or enteroclysis as a routine plan of treatment. When Cheyne-Stokes respiration is extreme faradization of the phrenic nerve, as advised by Wildermuth, may be tried.

To summarize the treatment of the comatose period: Counteract the exhaustion and sedation of the convulsive stage and watch for a possible return of convulsions; in the later stages stimulate and support the patient and treat complications promptly.

The treatment of the post-status period is generally supportive. Usually there is a freedom from attacks for a more or less long period of time, but this is too uncertain to warrant an entire withdrawal of sedation. Occasionally the convulsion may return in the post-status period and cause death, as the weakened condition of the organism is unable to withstand the renewed onslaught. For the delirium and the milder type of mania in the post-status stage 1/200 gr. of hyoscine combined with morphine 1/6 gr. may be given. It should be given often enough to keep the patient quiet and free from the motor restlessness which so frequently prolongs and delays convalescence. Insomnia is commonly a troublesome symptom in the post-status period; it is best controlled by small doses of morphine combined with paraldehyde, trional or chloretone. Hot baths and hot milk at night are often sufficient to overcome mild states of insomnia. Too little stress has been placed upon the milder remedies in restoring normal sleep and especially is this true in the insomnia after status; its rule of treatment should be largely comprised in rest and food. The post-

status mania rarely necessitates treatment by physical restraint. But such agents, if necessary, are best employed at the patient's home; mental aberration is almost always transient. Epileptics who may be insane in inter-status periods need to be watched carefully after status, as they are frequently suicidal and occasionally homicidal. If the patients do not exhibit great violence at the inception of the convulsive stage, no special change in the surroundings of the patients need be made; but if the contrary obtains, the patient's mattress should be placed on the floor in such a manner that other mattresses may be used for side pads to break the furious onset of convulsions. No epileptic should be physically restrained in the convulsive state as it only excites and exhausts. A roll of cloth should be employed to prevent the incessant biting of the lips and tongue.

The general care and nursing of a status case is fully as important as the medicinal. The temperature and pulse should be recorded hourly to gauge the degree of individual exhaustion occasioned by isolated attacks. The nurse needs to make notes of the convulsive phenomena; order of muscular invasion, if any; length of time of tonic and clonic spasm; the presence and absence of the typical symptoms of grand mal, etc., as the treatment is always based upon the bedside data. The kind and intensity of convulsive phenomena are only to be actually determined by grasping the muscle involved in different stages of an attack; the eye is always deceptive and many reported atypical phenomena of the status have their basis in the latter form of faulty observation.

The giving of proper and sufficient food to a status case has been found to materially aid in saving the patient's life. Foods should be in liquid form and highly nutritious from the start. Various preparations of milk, eggs and beef extracts may be given; but plain peptonized milk is by far the best food of all. It should be given often and in small amounts. All foods should be given early, before exhaustion and coma are profound. The earlier the food is given, the greater the chances are that its absorption will be consummated. As heretofore stated, pharyngeal and laryngeal paralysis is present in some degree even before coma is continuous between paroxysms, therefore many terminal bronchitides, lobular and lobar pneumonias are avoided by judicious feeding. Every attention should be directed toward



preventing the inhalation of food or vomited matter from forced feeding. As the difficulty of swallowing becomes progressively more marked, forced feeding by nasal or mouth tube may be resorted to. Occasional lavage of the stomach may be practised before the feedings. However, on the whole the great distress to the patient and the liability to interruption by seizures, renders the routine practice of forced feeding of doubtful value; we cannot recommend it. As a last resort, nutrient enemata may be given by rectum. The patient absorbs an infinitesimal amount of nourishment taken by the rectum in status, as secretive and absorptive activities are at a minimum. The autopsy in status cases usually discloses a quantity of undigested food throughout the intestinal tract. The little possibility that remains for rectal absorption should be taken advantage of for rectal medication and enteroclysis. The patient should be given plenty of water, a fact frequently overlooked in the confusion of treatment; often the first conscious demand of the patient is for water.

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We wish to express our gratitude to Dr. William P. Spratling, Superintendent of the Craig Colony, for encouragements and invaluable suggestions in completing this study.

To the Craig Colony Nurses, and Miss Sullivan in particular, we are especially indebted for many of the accurate data contained in the charts.

To Dr. E. A. Sharp our best thanks are due for his untiring efforts in obtaining the photographs for this clinical study.

We are much indebted to Dr. E. H. Williams for mapping the data in the clinical record charts.

#### EXPLANATION OF PLATES.

FIGS. 1, 2, 3, 4, 5.—Different phases of abstracted nucleoli. Fig. 2 presents a nucleolus greatly displaced within the nucleus. In every instance the intranuclear network is destroyed and the nuclear membrane is indistinct or entirely absent. Fig. 5 presents the nucleolus entirely without the cell. A fleecy mass of nuclear substance is still clinging to the nucleolus.

FIG. 6.—Large ganglion cell of motor cortex (case of F. D., see photograph and clinical charts) showing great irregularity in nuclear outline and marked chromatolysis. The whole cellular mass is reduced in size.

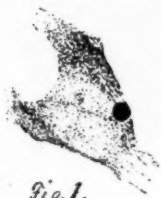
FIG. 7.—A cell of the third layer showing complete absence of nuclear membrane and chromatic substance. The cell protoplasm is vacuolated and the position of the nucleus is occupied by a granular mass. The nucleolus is absent.

FIG. 8.—The neuroglia overgrowth in the outer cortical layer. About one-half of the width of the outer cortical layer is here represented. The great irregularity in size and shape of the neuroglia nuclei is apparent.

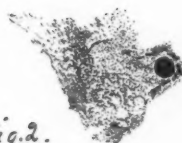
FIG. 9.—Completely degenerated nerve cells of the third cortical layer. Leucocytes (a) are seen in juxtaposition to two of the nerve cells. (b) A completely degenerated nerve cell of which nothing remains but a vacuolated mass of protoplasm. (c) An abstracted nucleolus. It will be noticed that in these cells almost every vestige of nucleus and chromatic substance has disappeared.

FIG. 10.—Cells of the third layer with leucocytes in the neighborhood. The leucocytes (a a) are lymphocytes; (b) is a large mononuclear cell superimposed upon a nerve cell. The cell (c) is a completely degenerated one from which the anatomical elements have entirely disappeared.

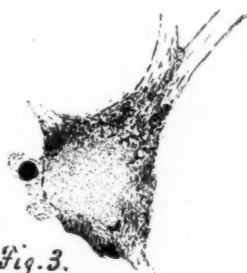
The drawing of Fig. 8 was made with Zeiss Ocular No. 3, Obj. D. D. All the others were made with Zeiss Ocular No. 3 and oil immersion 1/12. All outlines were made by aid of Abbe camera lucida.



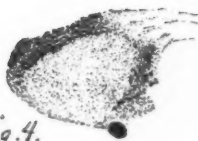
*Fig. 1.*



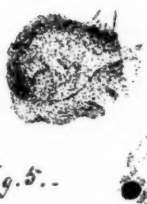
*Fig. 2.*



*Fig. 3.*



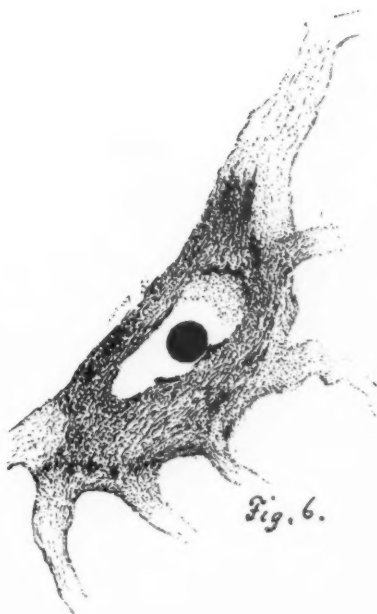
*Fig. 4.*



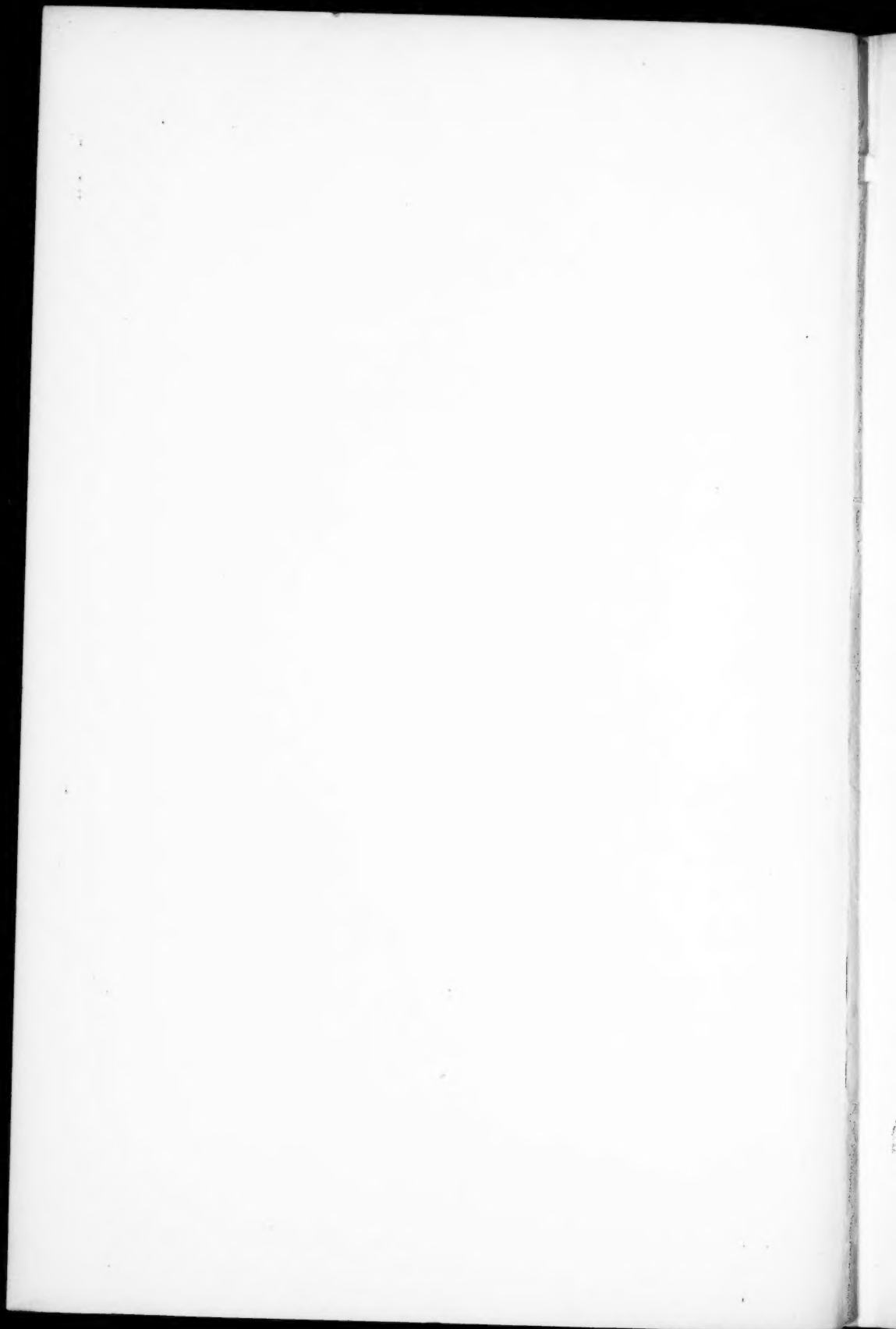
*Fig. 5.*

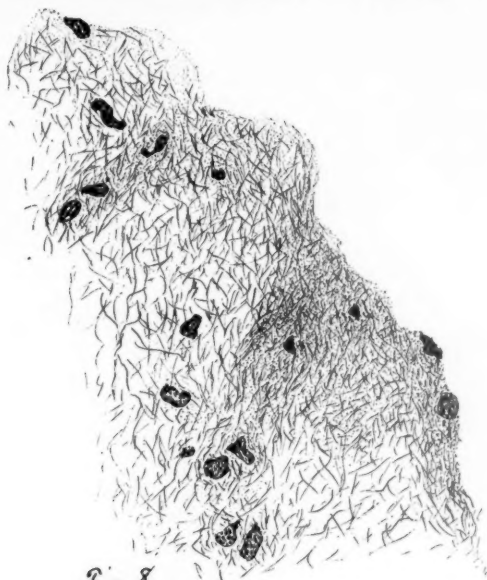


*Fig. 7.*

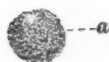
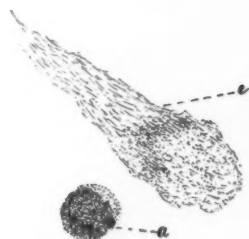
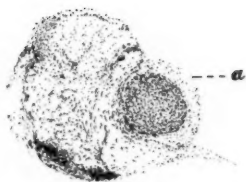
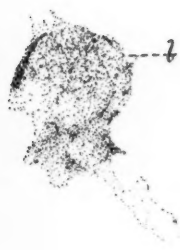


*Fig. 6.*





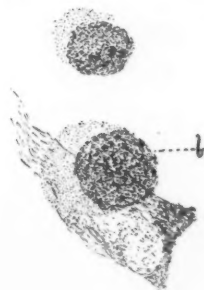
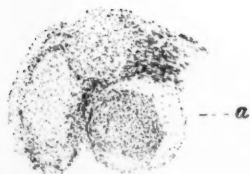
*Fig. 8.*



*Fig. 10*



*Fig. 9*





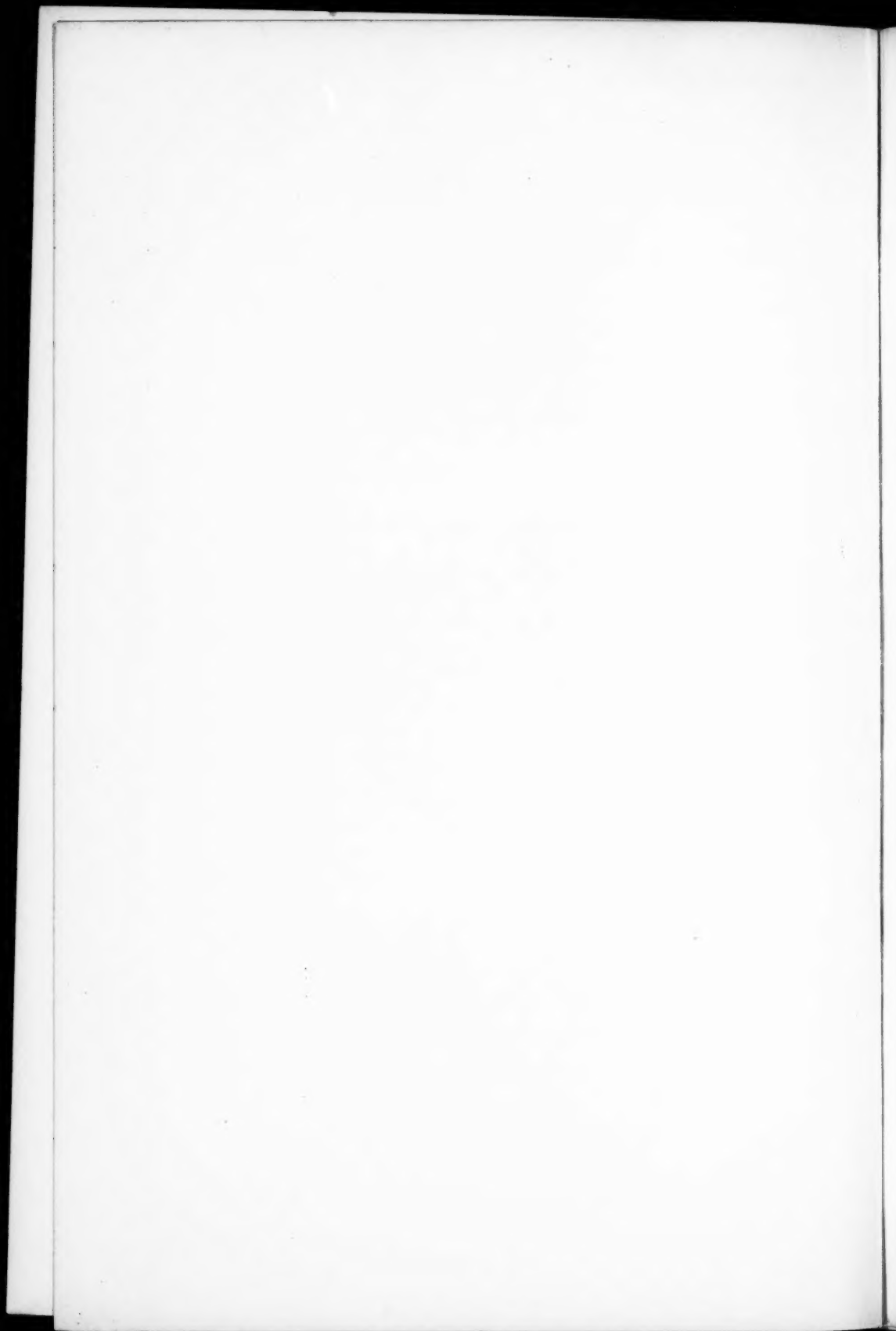




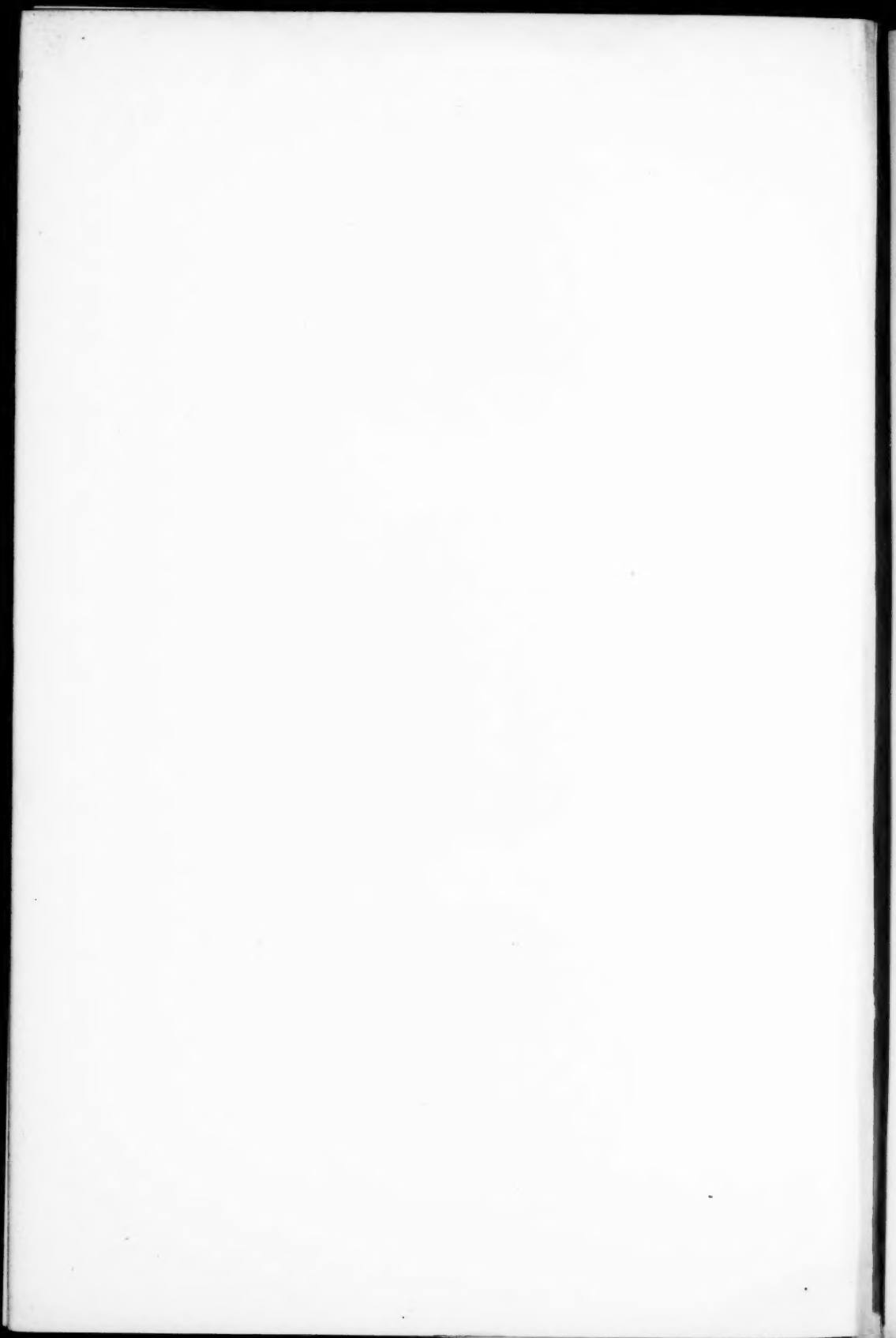
FIG. 13.



FIG. 12.



FIG. 11.



## ON THE INFLUENCE OF MODE OF LIFE UPON THE BLOOD OF INMATES OF A HOSPITAL FOR THE INSANE.

By W. G. MELVIN, M. D.

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of the New York State Hospitals.)*

The relation between the somatic condition and that of the mind of the insane has been the subject of numerous investigations during recent years. It is natural that some attention should also have been given to the study of the blood in insanity. A priori, it seems very probable that the abnormal composition of the blood should affect the central nervous system and with it the mind. However, in order to find an interpretation for any somatic symptom in the course of an insanity it is necessary to establish its relation to the mode of life of the patient regardless of the mental condition. It is also important to investigate whether or not a given symptom can be abated by ameliorating the surroundings of the patient.

These experiments were undertaken in order to study the influence of different modes of hospital life upon the blood of the insane. Four classes of patients were selected for the comparative analysis of their blood; namely, newly admitted patients, chronics confined to indoor life for a considerable length of time, chronics working out-of-doors, and patients living in tents.

It was found that the blood of newly admitted patients contained only between 60 and 70% of hæmoglobin. Then followed the chronic ward-patient with a hæmoglobin between 50 and 70%; next the blood of patients working part of the day out-of-doors with a hæmoglobin between 70 and 90%, finally the highest percentage of hæmoglobin was found in the blood of patients living in tents.

The number of the red cells was parallel to the hæmoglobin.

In attempting this work endeavor was made to do the blood-counting and the hæmoglobin estimation as nearly as possible under the same conditions. The hæmoglobin was estimated by means of the Fleischl apparatus with artificial light, the Gow-ers' hæmoglobinometer and the Tallquist scale. In counting the corpuscles the Thoma-Zeiss instruments were used. The greater part of the work was done in the afternoon about four hours after the mid-day meal, while a few cases were examined between 10 and 11 A. M.

It was not the object to pick out the most favorable cases but to select such patients as compared throughout in age and physical condition.

I wish to acknowledge my indebtedness to Doctor P. A. Levene for suggesting this line of research.

This work was made possible through the courtesy of the Superintendent of Manhattan State Hospital, West, Doctor E. C. Dent, and of the members of the staff, Doctors Campbell, Delacroix and Moseley, and I take this opportunity to express my gratitude to them for the courtesy shown me.

TABLE I.  
NEWLY ADMITTED PATIENTS.

No. of Case.	No. of Erythrocytes.	Per cent. Hæmoglobin.	Diagnosis.	Remarks.
I.	3,900,000	65-70	Dementia Præcox.	Physical condition fair.
II.	3,750,000	60-70		Physical condition fair.
	3,810,000	65-70	Alcoholic Psychosis.	Physical condition fair.
	3,780,000	60-65		Physical condition fair.
III.	3,920,000	60-65	.....	Physical condition poor.
	3,900,000	65-70		Physical condition fair.
IV.	3,900,000	60-62	Dementia Præcox.	Physical condition fair.
	3,990,000	65-70		Physical condition poor.
V.	3,890,000	60-65	.....	Physical condition poor.
	3,840,000	60-65		Physical condition poor.
VI.	3,600,000	60-65	Manic-Depressive Insanity.	Physical condition poor.
	3,580,000	60-70		Physical condition fair.
VII.	3,740,000	55-60	Dementia Præcox.	Physical condition fair.
	3,780,000	55-65		Physical condition poor.
VIII.	3,500,000	60-65	Manic-Depressive Insanity.	Physical condition poor.
	3,600,000	60-65		Physical condition fair.
IX.	3,480,000	60-65	.....	Physical condition poor.
	3,500,000	55-60		Physical condition fair.
X.	3,900,000	55-60	.....	Physical condition poor.
	3,800,000	60-65		Physical condition fair.
XI.	3,890,000	65-70	.....	Physical condition poor.
	3,900,000	60-65		Physical condition fair.
XII.	3,500,000	55-65	Dementia Præcox.	Physical condition poor.
	3,560,000	60-65		Physical condition fair.
XIII.	3,900,000	65-70	.....	Physical condition poor.
	3,800,000	65-70		Physical condition fair.
XIV.	3,890,000	65-70	Toxic Psychosis.	Physical condition poor.
	3,900,000	60-65		Physical condition fair.
XV.	3,960,000	70-75	Dementia Præcox.	Physical condition fair.
	3,860,000	65-70		

TABLE II.  
CHRONICS CONFINED TO INDOOR LIFE FOR A CONSIDERABLE  
LENGTH OF TIME.

No. of Case.	No. of Erythrocytes.	Per cent. Hæmoglobin.	Diagnosis.	Remarks.
I.	3,800,000	60-65	Epileptic Insanity.	Physical condition poor.
II.	3,680,000	55-65	Melancholia Chronica.	Physical condition poor.
III.	3,620,000	60-65	Epileptic Insanity.	Physical condition poor.
IV.	3,420,000	55-60	Melancholia Chronica.	Poorly nourished; confined to bed.
V.	3,600,000	55-65	Melancholia Chronica.	Physical condition poor.
VI.	3,480,000	50-55	Epileptic Insanity.	Physical condition poor.
VII.	3,400,000	50-55	Melancholia Chronica.	Physical condition poor.
VIII.	3,020,000	50-55	Epileptic Insanity.	Physical condition poor.
IX.	3,100,000	50-60	Melancholia Chronica.	Physical condition poor.
X.	3,060,000	55-60	Melancholia Chronica.	Physical condition poor.
XI.	3,000,000	50-55	Melancholia Chronica.	Physical condition poor.
XII.	3,450,000	50-60	General Paresis.	Physical condition poor.
XIII.	3,300,000	50-55	Melancholia Chronica.	Physical condition poor.
XIV.	3,310,000	50-60	Melancholia Chronica.	Physical condition poor.
XV.	3,000,000	50-55	Melancholia Chronica.	Physical condition poor.
	3,080,000	55-60	Melancholia Chronica.	Physical condition fair.

TABLE III.  
CHRONICS WORKING OUT-OF-DOORS.

No. of Case.	No. of Erythrocytes.	Per cent. Hæmoglobin.	Diagnosis.	Remarks.
I.	4,150,000	80-85	Epileptic Insanity.	Physical condition good.
II.	4,200,000	80-85	Melancholia Chronica.	Physical condition good.
III.	4,220,000	75-85	Melancholia Chronica.	Physical condition good.
IV.	4,200,000	75-85	Melancholia Chronica.	Physical condition good.
V.	4,180,000	80-85	Melancholia Chronica.	Physical condition fair.
VI.	4,210,000	80-85	Melancholia Chronica.	Physical condition good.
VII.	4,100,000	80-85	Melancholia Chronica.	Physical condition good.
VIII.	4,120,000	80-85	Melancholia Chronica.	Physical condition good.
IX.	4,250,000	80-90	Melancholia Chronica.	Physical condition good.
X.	4,200,000	80-85	Melancholia Chronica.	Physical condition good.
XI.	4,180,000	80-85	Melancholia Chronica.	Physical condition good.
XII.	4,240,000	80-85	Melancholia Chronica.	Physical condition good.
XIII.	4,200,000	80-85	Melancholia Chronica.	Physical condition good.
XIV.	4,250,000	80-90	Melancholia Chronica.	Physical condition good.
XV.	4,230,000	80-85	Melancholia Chronica.	Physical condition good.

TABLE IV.  
PATIENTS LIVING IN TENTS, ON SPECIAL DIET WITHOUT TREATMENT.

No. of Case.	No. of Erythrocytes.	Per cent. Hemoglobin.	Weight.	On Admission.		Duration of Psychosis before Admission.	Diagnosis.	Remarks.
				Per cent. Hemoglobin.	Weight in lbs.			
I.	4,500,000	80-90	135	60	110	4 weeks.	Dementia Precoc.	Discharged improved.
II.	4,420,000	85-90	142	60-70	123	3 weeks.	Paranoiac Condition.	Marked improvement.
III.	4,500,000	85-90	161	60-70	130	4 weeks.	Dementia Precoc.	Marked improvement.
IV.	4,460,000	85-90	146	60-70	128	3 weeks.	Dementia Precoc.	Marked improvement.
V.	4,520,000	85-95	109	60-70	85	4 weeks.	Dementia Precoc.	Marked improvement.
VI.	4,580,000	80-90	150	60	132	3 weeks.	Dementia Precoc.	Marked improvement.
VII.	4,540,000	85-95	144	60-70	115	4½ weeks.	Manic-Depressive Insanity.	Discharged recovered.
VIII.	4,580,000	80-90	132	60-70	108	2 weeks.	Manic-Depressive Insanity.	Marked improvement.
IX.	4,660,000	85-95	151	60-70	133	2 weeks.	Dementia Precoc.	Marked improvement.
X.	4,600,000	85-95	142	60-70	121	2 weeks.	Dementia Precoc.	Marked improvement.
XI.	4,500,000	80-90	143	60	120	2 weeks.	Dementia Precoc.	Marked improvement.
XII.	4,620,000	85-95	130	60-70	115	3½ weeks.	Dementia Precoc.	Marked improvement.
XIII.	4,480,000	85-95	128	60-70	108	5 weeks.	Dementia Precoc.	Marked improvement.
XIV.	4,584,000	90-95	165	60-70	145	2½ weeks.	Dementia Precoc.	Marked improvement.
XV.	4,380,000	85-90	130	60-70	108	5 weeks.	Manic-Depressive Insanity.	Discharged recovered.



## DINNER TO DR. EDWARD COWLES ON HIS RETIREMENT FROM THE McLEAN HOSPITAL.

On January 29, 1904, at the Union Club in Boston, a dinner in honor of Dr. Cowles was given by a few of his friends on his retirement from the superintendency of the McLean Hospital, after twenty-four years of service. Dr. George F. Jelly presided and Dr. Walter Channing was toast-master. A loving cup was presented to Dr. Cowles as a testimony of the love and esteem in which he was held by those present.

Dr. Jelly said in his opening remarks:

I suppose that I have been asked to preside this evening because I have been acquainted with our friend Dr. Cowles longer than anyone present, except Dr. Rowe, and my connection with the McLean Hospital antedates that of anyone here. It may therefore be proper for me to review, very briefly, some of the changes of which I myself have been cognizant.

I became an Assistant Physician at what was then called the McLean Asylum, in the summer of 1869. Dr. John E. Tyler was then the Superintendent, a man of fine character, of attractive presence, conscientious and able; a man whom no one could fail to like and respect, who was brought daily in close contact with him. He was conservative, but cautiously progressive. There were about two hundred patients at that time at the Asylum. The large rooms under the domes on either side of the institution were used as dormitories for chronic quiet demented patients. Danvers, the new Worcester Hospital and the Western Hospital had not been built, and, if my memory is correct, there were no private hospitals for the insane in the State, except that Dr. Rowe took a few patients at the Cutter Retreat, Pepperell, of which Dr. Heald now has charge, and Dr. Edward Jarvis had a few mildly insane patients at his home in Dorchester. At this time restraint was very freely used, with both the male and female patients. Almost all violent or actively suicidal patients were restrained at night by mechanical means, and female nurses were frequently required to sleep in the same bed with actively suicidal patients, who in addition wore a camisole. There were very few special nurses at night, the day attendants being required in case of urgent illness to relieve each other in their care. There was, of course, a regular night nurse or attendant on either side of the house, who called up the day nurses if necessary. At the McLean, as at every insane asylum in the State, sedative drugs were used quite largely. I joined what

is now the American Medico-Psychological Association in 1871, and I recollect that at one of the early meetings which I attended, much was said about restraint and non-restraint in insane hospitals, and the majority of the members strongly advocated the use of mechanical restraint as an absolutely necessary curative measure.

We had good men and women as attendants in those days, who did faithful work so far as they were instructed, but we knew nothing of training-schools then, and of the present improved methods of caring for patients. A good deal was done in the way of diversion and out-of-door exercise. There were classes in French, singing and drawing; bowling and billiards for both the male and female inmates, with dances, concerts and lectures. The institution did good work with the light we then had. Patients were cured, and were sent away to their friends and well-wishers.

Under Dr. Tyler a gradual change was taking place and an era of development had already commenced; a more liberal policy was introduced. In the years that followed the use of restraint was much lessened, and the use of drugs was greatly diminished. The intercourse of patients with their friends was more free; more paroles were given; more special attendants were employed; the corps of night nurses was increased; the dorms were given up as dormitories for patients, and were used for the night nurses; and a beginning was made in the employment of women in the male wards.

Then, in 1879, Dr. Cowles entered upon his superintendency, bringing to the work a long and varied experience in army life and the conduct of a large general hospital.

The hospital idea became more and more prominent in contrast with what may be called the asylum idea. In furtherance of this and in the new impetus which he gave to everything, the character of the institution changed. He founded the training-school for nurses, the first in any insane hospital in this country. In the general advance came the planning, the building, the equipping, the organizing and starting of the beautiful hospital at Waverley, which will ever stand a monument to him, with its well equipped pathological department, its department for pathological chemistry, its gymnasium, its system of baths and all that is required to meet the exigencies which must arise in any modern curative institution. Restraint is scarcely used and the use of powerful sedatives is almost given up.

These changes have been brought about in the past twenty-four years, during Dr. Cowles's administration, to say nothing of articles upon subjects connected with mental disease and lectures which he has written, which have added honor to the McLean and to himself.

He leaves his work there with a reputation undimmed and second to none of his predecessors.

There is one thing which I want to mention before I sit down and of which, perhaps, I should not speak, were we not all of us a sort of family circle here to-night. I allude to the personal relations which have existed

between Dr. Cowles and myself. I know he will pardon me. In these years we have been closely associated—many times in consultation, in court work and in trying to help each other. At the hospital I have always found the open door, the glad hand and the cordial welcome.

After years of public work, it is right and proper that he should retire from the harassing cares of the hospital, and should be permitted to use his knowledge and ripe experience in a more untrammelled way, in private life and private practice, where he can give more time to consultation and medico-legal work; and, as the oldest physician in the city actively occupied in the special work in which we are all interested, I desire to welcome him to Boston, to assure him that he will find himself among friends, and to predict for him an abundant success.

Dr. G. H. M. Rowe, of the Boston City Hospital, spoke as follows:

It gives me much pleasure to respond to the toast of good health and prosperity to Dr. Edward Cowles. I have undoubtedly known Dr. Cowles longer than any person present, and no one here is more indebted to him than myself, although there is no one of us who does not owe him much, in one way or another.

My acquaintance with Dr. Cowles goes back to the first month of my Freshman year in Dartmouth College. He had graduated two years before my entrance, but with his characteristic loyalty to everything to which he once commits himself, he was zealous to his college allegiance. My first debt to him was his persuasion in pledging me to the Alpha Delta Phi fraternity, a society which I afterwards learned to love, and to which I owe much.

My second debt was on the day following my graduation, when he dissuaded me from becoming a pedagogue and showed me the way to enter upon my desire for the study of medicine.

My third and greatest indebtedness was in the fact that he was largely instrumental in my being chosen to fill the vacancy caused by his resignation as Medical Superintendent of the Boston City Hospital, which position he had held for seven years. As you all know, he then took up the Superintendency of the McLean Hospital, at its former location in Somerville.

The work of Dr. Cowles and his regeneration and advancement of the Boston City Hospital in many ways is too well known to be recounted here. He elevated it from a position quite ordinary among the hospitals of that time; under his administration, it was enlarged to twice its size when he assumed charge; new buildings were added in which many new features of hospital construction were first used, and although at that time new, they still remain as accepted features of good hospital construction. During his first years there, hospital gangrene, pyæmia and surgical sepsis obtained to a frightful extent. By his work in the reconstruction of the system of heating and ventilation, all blood-poisoning diseases, except

those due to the surgical technique of that day, disappeared. Many improvements and reorganizations based upon military lines, and suggested by his army experience, were perfected. He surrendered the Hospital to me, reconstructed in its physical features, improved in its personnel, and reorganized in its administration.

For more than forty years, our work has never been a great way apart. Our numberless conferences upon hospital work, our mutual interests in each other's welfare, and best of all, the warm personal friendship that has existed between us, unbroken in all these years, might beguile me to speak at such length upon the many personal achievements of Dr. Cowles, that your patience would not endure.

I shall confine myself to one theme only, namely, the great debt that is due to Dr. Cowles as a pioneer in the cause of training schools for nurses. To this work he has given a marked impetus, in general hospitals as well as in hospitals for the insane.

In 1878 Dr. Cowles, with the assistance of Miss Linda Richards, the first American woman in the United States to hold a diploma as a trained nurse, began the Training-School for Nurses at the Boston City Hospital. I recall several notable and interesting facts of this period of hospital history. Previous to 1878 there were only two well organized training schools in the United States—the Bellevue Training-School in New York and the Massachusetts General Hospital Training-School in Boston. I do not overlook the fact that there had been established nominal schools for nurses at the New England Hospital for Women in Boston—and this the very first—and one at the New Haven Hospital in Connecticut. While these two schools had some classes, desultory lectures and blackboard work, they could not be classed as training-schools, except in the way of small beginnings.

You will recall the fact, also, that no training-school previous to the one established by Dr. Cowles, was an integral part of the Hospital in which it worked, but was a separate and distinct outside corporation, furnishing to a hospital so much nurses' work for so much wages, the school finding its material for training and the hospital having its patients nursed. There are many interesting phases that were evolved out of this period that would be profitable to discuss, did time permit. The Boston City Hospital Training-School was the first in the United States that was a part of the hospital organization itself, and independent of outside assistance.

Upon the thorough groundings of our training-school, so well thought out and established upon a good basis, has been built the training-school of to-day. Its work, its growth, its nurses as a product, and the repute in which it stands, are hardly becoming for me to discuss. Much that it has attained is due primarily to its right beginning, and to Dr. Cowles all credit should be given. But Dr. Cowles' greater work in the cause of nursing lies in the fact that he is the pioneer in training-schools among the hospitals for the insane.

In taking up his work at the McLean Hospital, the deficiencies in the

nursing system in that hospital were apparent. There were at that time no training-schools among the hospitals for the insane in America, from which to copy. Dr. Clouston of Edinburgh, had written much upon the subject; the difficulties were discussed, and suggestions made that at this time seem crude, unwise, cumbersome and unprofitable. Dr. Clarke, of the Glasgow District Asylum, followed Dr. Clouston's suggestions; some class instructions were given, a few lectures, and some advice as to the management of the insane; but if our memory serves us rightly, no school for training attendants upon the insane was formally scheduled, and little or no force put upon bodily nursing.

The McLean Training-School for Nurses was established in 1882. It was the endeavor to train both men and women in a well-developed curriculum of class work, lectures, demonstrations, in bodily as well as mental nursing, with specialties in nursing not hitherto considered a part of a nurse's work among the insane.

With Dr. Cowles' great work at the McLean Hospital we are all familiar. The further development of the professional work may yet greatly distinguish his fame, but the result in the instruction of nurses upon the insane has revolutionized that work and will obtain as the standard upon which others must for a long time be established.

In closing, I desire to express to Dr. Cowles the great gratitude that I personally owe to him, and to wish that the Indian summer of his life may be peaceful, full of enjoyment and of satisfaction in the great work that he has so successfully accomplished, to a distinguished degree.

Dr. John B. Chapin, superintendent of the Pennsylvania Hospital for Insane, who was unable to be present, said in a letter:

I well remember my first meeting with Dr. Cowles on the occasion of a visit to this department of the Pennsylvania Hospital about the year 1880—a date prior to my connection with it. It was his first appearance in our Association, and I presume he looked upon us with probably as much curiosity as we observed him. Then we knew little of his record, or the quality of his previous service, but as we now look over the years that have intervened, we have the record of a man who has magnanimously performed the duties and responsibilities of his position as they have come to him. These duties, and all of his professional and literary work, have been performed quietly, and while they have inured to the benefit of the whole profession and the interests of humanity, we can affirm as others have affirmed that he has created a hospital and a professional service which, although ahead of his time, will yet be a model to those who may come after us.

Some years ago I had occasion to prepare a notice of hospital nursing service, and as a result of a cursory examination of its history I concluded that Dr. Cowles was the first in our country to undertake the systematic training of nurses for hospitals for the insane—a work which has been followed very generally throughout our entire country, and

also a work which has become well known abroad as being identified very closely with Dr. Cowles and his hospital.

It is also a pleasure to pay a tribute to his professional work, which has interested and concerned us all very much. While perhaps but few have been able to follow him in his work, because we have not understood it or did not have the opportunities and preparation for it, we no less admire and honor him for the lessons he has left us at Waverly. While often on such occasions fulsome praise may be bestowed upon one whom we might delight to honor, yet I think I would express the feeling of our specialty not only on this side of the Atlantic, but in other lands, that he has been foremost in doing what has been accomplished. If he has not accomplished all that he has hoped to do, he has laid the broad foundation and left behind an inspiration which will never be lost. More than all this, I regret that I am not present with the company who will meet Dr. Cowles with you. I would most delight to take him affectionately by the hand, and, while he is in a state of retirement, with judgment and mental powers undimmed as yet by age, thank him for what he has done, and bid him courage in the years that remain to him. In his retirement, which has come as a shock to all of us, I hope he may find courage and consolation in what he has done, and continue to pursue such literary and scientific work as may come in his way. In his retirement we must sympathize with him deeply, and feel that our specialty has sustained a decided loss.

Dr. Charles F. Folsom said:

Our friend has been and is the foremost figure in the tremendous advances that have been made in this country, during the last quarter of a century, in the intelligent and rational management of the insane and the scientific administration of the hospitals for their treatment, with all which that means.

Several years before the appointment of Dr. Cowles to the McLean Asylum, I visited many insane asylums in a dozen States. None were better than asylums, many not much more than boarding places for the insane. Since 1879 I have read every one of the reports of the Superintendent of the McLean Hospital for the Insane, and have noted with great gratification the steady pushing forward; and I have seen Dr. Cowles's influence spread from these all over our country, raising the asylum to the level of the hospital, and making of the Association an active working medical society.

I consider the scientific investigations and the laboratory work at the McLean as of the highest possible value; and I venture to predict that ten years hence they will be regarded as a foundation of that sound physiology and pathology which fixes insanity as a disease with a physical basis, and to be treated as such.

It is with deep feeling that I avail myself of the privilege to testify to my great admiration of the superb work which Dr. Cowles has done.



Dr. Edward N. Brush said:

To me was assigned the task, Dr. Cowles, twenty-four years ago, of writing in the *JOURNAL OF INSANITY* the brief notice which chronicled your appointment to the position from which you now retire with so much honor, with so many well-won laurels. I think I may not be charged with revealing any of the secrets of the editorial room if I say that your appointment was not heralded with any great enthusiasm. You were an outsider; you had been reared in the medical service of the army and afterwards in the direction of a general hospital. What did you know about insanity or the care of the insane or the conduct of an insane asylum? We all waited with interest, with curiosity and, I may add, with expectation of failure on your part.

You soon showed that our measure of your knowledge, if not of your capacity, was in some degree correct. You did not know much about the conduct of an insane asylum, and what is more, you showed no disposition to learn; but you did know, and you did exhibit, an ability to teach all of us many things about the conduct of a hospital for the insane.

It is therefore to me at least, Dr. Cowles, a pleasant duty to stand here this evening and tell you how much your example has inspired many of us; how much we feel and believe you have done to advance American psychiatry and American medicine. I feel that I personally owe you much. Like many of my friends, like many at this table, I have come to you in times of doubt and worry and found in your wise counsel much that has aided and comforted me, and at all times I have felt that in your work at McLean you had planted a banner far in advance on the skirmish line upon which those who hoped to achieve any success in the battle with disease must keep their eyes steadily fixed.

I have in conclusion, Dr. Cowles, another message to deliver. I have had, as you know, for some time a patient under my care formerly under your observation at McLean. When I told her I was going to Boston and the object of my visit, she charged me to convey to you her love, the best, deepest love of her heart, and to say to you that what you had done for or said to her had gone with her and had been a comfort to her all the days and months and years since she had left your care, and that the great regret of her life was that she had not in her early years fallen under your kindly direction and care, for then she believed she could have made something of her life with that assistance and guidance.

Dr. Rowe has spoken of the Indian summer of your life. One recalls the sunsets of that delightful season, when the clouds are painted in purple and gold and the western sky seems like the entrance to the City of Gold, and then the smoky, hazy days with their balmy atmosphere which lulls one to rest and quiet contemplation. Such, my dear Doctor, may all your days be, and as you look backward over the days that are past, the haze that covers the landscape and tones down its rough features and adds an elusive and curious beauty to the distant hills and



valleys, will in a like manner dim the disappointments and cover the trivial worries of the past, and only the softened and more beautiful aspects of your life-work will appear to you, and then the golden glow of the west will appear, beautiful, splendid and heralded as it is to-night by your friends, "well done." May you long live to enjoy these well-earned Indian summer days.

Dr. Blumer, speaking to the toast, "Dr. Cowles as a Hospital Organizer,"

Quoted Mr. Furniss, of Philadelphia, who ten years ago had said anent the retirement from office of Provost Pepper, "We fill high the sparkling bowl to the memory, and we pile high with wreaths the tombs, of men to whom when living we vouchsafe not much more than a supercilious nod. They may have craved a word of sympathy or of admiration, and we are marble-mute, but no sooner are they where 'Honor's voice' cannot 'provoke the silent dust' nor flattery soothe the dull, cold ear of Death' than we burst forth into applause of their deeds, rend the air with our peans of lofty praise and erect their statues." He thought that the charge of neglecting Dr. Cowles could not be laid at the door of his loving brethren, since there was no man whose pre-eminent merit had been more generally recognized, no man whom they had greater delight in honoring for his achievements on behalf of psychiatry. He would not interpret the toast literally. Previous speakers had already told the tale of his many-sided prowess. Suffice it to say that Dr. Cowles was recognized to-day as the foremost all-around psychiatrist of the United States. Someone had defined genius as a capacity for and mastery of detail. Measured by that definition, Dr. Cowles was a genius. A New England philosopher had said that a genius was a man whom God had sent into this world marked "good for this trip only" and "not transferable." Dr. Cowles answered to that description also.

The speaker rejoiced that Dr. Cowles's mantle had fallen upon the shoulders of one who, by reason of long and capable service to McLean Hospital and unswerving loyalty to his chief, was peculiarly fitted to carry on the good work along the lines of enterprise laid down by his predecessor. Dr. Blumer remarked that when Hegel lay dying, he deplored the fact that he was leaving the world with only one man in it who understood his system—and he didn't really, he added, regretfully. He thought that if there remained any imperfections in Dr. Tuttle's knowledge of the situation at McLean, that defect could easily be made good by Dr. Cowles in his rôle as member of the Consulting Board. He concluded with a reference to the affection and esteem in which all present held their honored guest and invoked the blessing of Heaven upon him in his withdrawal from the sturt and stress of life.

Dr. Hurd spoke as follows:

I have been asked to speak of the scientific work of Dr. Cowles, and I first call your attention to a statement which he made in 1888 in his

admirable paper, "Insistent and Fixed Ideas," to the effect that the sick-room is a laboratory with its crucial experiments as real as those in which culture experiments are instituted in bacteriology. To this he adds with approval the words of Kraepelin, "Only by the inner connection of brain pathology with psycho-pathology can we succeed in finding the laws of the reciprocal relation between somatic and psychic disturbance and thus get a really deeper understanding of the phenomena of insanity." These brief sentences are the key-note of his conception of laboratory work in a hospital for the insane.

In the scientific work which he has inaugurated at McLean it is gratifying to observe in what an orderly, systematic way he has pursued these inquiries and how promising have been the results already secured. At first he had the skilled aid of Dr. Noyes, now of the Boston Insane Hospital, who investigated the relations of so-called physiological psychology to morbid mental phenomena and the bearing of fatigue, exhaustion, sleep and mental hebetude upon the superficial and deep reflexes and upon other automatic nervous processes. This study was continued by Dr. Hoch, who brought to his investigations the methods of the pathologist and skilled clinician, and thus was able to interpret clinical findings by the pathological processes which he had detected. I have no hesitation in saying that these clinical observations and psycho-pathological studies have been unexcelled in the history of American psychiatry, and that the work initiated by Cowles and carried on by Hoch will be an example to other institutions for years to come.

While these studies were in progress it became evident that painstaking investigations in bodily metabolism were needed, and tentative work in special forms of insanity followed under the lead at first of Hibbard and later more systematically under Folin. To the latter we are deeply indebted for new processes of investigation and thorough and painstaking studies. The foundation which he has laid is ready for the superstructure of physiological deduction which I am informed is soon to be erected upon it by the added labors of an expert physiologist. I have learned, in fact since I sat down at this table, that funds have just been assured for the completion of this work which is expected to interpret the results of physiological chemistry in terms of physiology. All honor to our friend who has had the genius to formulate this work and the persistent energy to prosecute it until the end seems in view!

I rejoice that the well-earned leisure which is now his will enable him to put upon paper the results of his many studies, for the benefit of our common work. I congratulate him that he has so much to do. We need fuller details of his psychological studies, of his methods of training and educating mental nurses, of his scheme of instruction for medical men in psychiatry and, above all, of his mature conclusions upon hospital organization and administration. If he does all which we desire to have him do, I am sure that his so-called retirement will be a period of intense activity.

Whether he accomplishes all we have planned for him or not, I am sure that whatever he does will make the world richer. In conclusion

I wish to assure him of the enthusiastic admiration and warm affection of every toiler in the domain of psychiatry. We revere him as our master and we love him as our brother.

Dr. Charles P. Bancroft said:

It gives me pleasure to add a word to what has already been so appropriately said at this time. It is always a pleasure to behold a man as he grows older in years retain the mental vigor and elasticity of youth. It is inspiring to see such a man still standing on the firing line and putting in as vigorous work as those who have just enlisted in the service. To me Dr. Cowles has always been an incentive to renewed personal work, because of his unlimited energy and enthusiasm in the prosecution of not only the work of hospital construction and organization, but of scientific research as well. It is so easy for a man after twenty-five or thirty years of continuous work to let up a little that the picture of a man working just as energetically and enthusiastically at sixty years of age as at thirty is almost inspiring.

The problems that Dr. Cowles has worked out in both general and special hospital work during the past thirty years include the best of all that has been done during a wonderfully active period. The introduction and permanent establishment of training-schools for nurses in general hospitals and later in special hospitals for the insane received prompt recognition from him. I have always regarded it as extremely fortunate for the insane that a man of his special qualifications should have been transferred in the very strength of his maturer life from general to special hospital work. For to his zeal and enthusiasm more than anything else were due the introduction of trained nursing in asylums for the insane and the incorporation in these institutions of the hospital idea.

Not only does Dr. Cowles deserve great credit for the remarkable success he has achieved in the more practical details of hospital construction, but especially is he deserving of praise for his persistent prosecution of the more purely scientific study of insanity. It is indeed remarkable that a man should take up the study of psychiatry somewhat later in life than the majority of alienists and achieve the success that has been his. This success is an enduring testimonial to his energy and scientific spirit. Nowhere has Dr. Cowles's success been more pre-eminent than in the field of medical expert testimony. His clear exposition of the mental characteristics of a case, his logical grounds for his belief, has always made him a strong expert witness. But especially is Dr. Cowles deserving of praise for the influence he has exerted with the courts and with the legal profession toward attaining the expression of an impartial and purely scientific medico-legal opinion. His efforts in this direction have done much to elevate the character of expert testimony and save it from popular ridicule.

To the conscientious members of the medical profession I think nothing has been more unsatisfactory than the way in which experts are sum-

moned and the way in which expert testimony is presented. Jurists and members of the bar have been appealed to, but the general opinion of the legal profession seems to be that the present method of presenting expert testimony cannot be interfered with. The only way open to the honest expert is in cases of doubt to insist on consultation with the other side and thus secure evidence which for partisan reasons may be concealed. This is not always an easy thing to do. The expert who undertakes to convince his own counsel that there may be valid grounds for consultation and modification of opinion must possess great tact. It frequently happens that counsel on either side are more interested in setting up a good fight and carrying their point than they are for the expression of a purely impartial medical opinion which would militate against them. And yet the establishing of such an opinion is the only thing that should interest the honest expert. The famous Kelly case in New Hampshire and the Palmer case in Rhode Island are notable illustrations of this.

In both these cases it chanced that I was on the opposite side from Dr. Cowles. In both cases the lawyers had evidence up their sleeve which they did not propose the other side should have, but in both cases a compromise was effected, the ends of justice were secured and medical expert testimony was not degraded. In securing this happy result in this and similar cases Dr. Cowles's influence has always been on the right side, and in furthering this end he has rendered his professional brethren a lasting service.

Dr. George T. Tuttle, Dr. Cowles' successor as superintendent of the McLean Hospital, spoke as follows:

Few have had better opportunity than I to know the history of the McLean Hospital during the last twenty-four years, and the value to it of the services of my esteemed predecessor. He has talked with me concerning the important changes which have been made, and it has been my privilege to watch the development of his plans. I know of no better source of inspiration for this successor than a review of this nearly quarter of a century. It is long, and filled with important events—of which I can mention but a few—all of which are known to you. First in time, and lying at the foundation of succeeding important work, was the establishment of the system of medical internes, and then the training school for nurses, the first in a hospital for the insane in this country. These, as I have said, lie at the foundation of advanced work in psychiatry. They render possible the careful observation of patients and the more complete histories we now try to take.

The laboratory work was begun at Somerville many years ago, when twice a week the medical staff, then consisting of the Superintendent and two assistant physicians, received and personally paid for instruction in the microscopical examination of cord and brain. From this small beginning the work has broadened, particularly since removal to Waverley, and now through the continued interest and personal efforts of Dr. Cowles,

since his retirement, there is hope and even an expectation of its still further development. In connection with the work of the laboratories a library, of 3400 volumes and over 2000 pamphlets, has been collected which is particularly rich in current medical literature.

The gymnasiums, our medical work-shops, houses for occupation, recreation and treatment of the patients, also have gradually evolved from the bowling alleys and billiard rooms of former days, till now the houses in addition contain the fully equipped gymnasium, work-shops, hydro-therapeutic apparatus, with rooms for reading, music and art, and we would feel lost without these facilities and the valuable services of the two instructors in physical training.

Through the wise foresight of Dr. Cowles the location originally selected for the hospital at Waverley was changed to give the present beautiful outlook, and the floor plans of all the houses are his. He was the adviser of the architects throughout their work, and the hospital represents his professional knowledge. It was built for the advantage of the patients rather than for ease and economy of administration.

The many changes in methods of care and treatment, as well as in the construction of the houses, have brought a considerable increase of the medical and nursing service as well as of that not so directly concerned with the immediate care of patients. Since 1880 the official family has increased from eight to twenty-five, and the nurses from sixty-four to one hundred and thirteen, with the addition of twenty ward-maids. The yearly income of the hospital during this time has increased from \$120,000 to \$213,000.

Ever zealous in promoting all good things, versatile, anxious to furnish his assistants the most ample facilities for their professional work, inviting and giving all due weight to their opinions, he won their respect and esteem. I may justly speak of Dr. Cowles as an alienist who has made many valuable contributions to psychiatry, whose powers and zeal have not been limited by advancing years, and who still points the way to younger men. An expert in hospital construction, whose ideas are embodied in many hospitals in this country, and whose writings have secured international recognition. An administrator of great experience and wide reputation. A man of excellent judgment; of wise foresight; of firm will; of gracious courtesy and kindly tolerance for the immature opinions of younger men; always an optimist.

The new McLean Hospital, with all that the name implies, is his work, and it will stand as his memorial in the years to come.

Dr. Channing in presenting the loving cup said:

It signified the love and respect in which Dr. Cowles was held by all his friends. If he could be allowed to speak of the symbolic significance of the cup he would say that the symmetrical shape and outline of the cup well represented the consistent and steadfast career of Dr. Cowles. He had always pressed on without ceasing toward one goal, which was

to do the best he could both for the scientific and practical side of his work. One of the handles might signify character; another, ability; and the third, capacity for work; and the wine filling the cup should stand for achievements. We must all say that with these the cup was filled to the brim.

Dr. Cowles, in response to what had been said, replied:

*My dear friends:*—"Here's to your good health and your families! May you live long and prosper!" I feel like a Rip Van Winkle suddenly awakened to see and hear incredible things. Dr. Channing asked me, some weeks ago, to meet him here this evening, and lately intimated that others would be present. But except two or three of you I did not know who were in this conspiracy concerning my peace of mind, or that you could have thought such things as you have been saying here. It is appalling to think of trying to make good such an estimate of my unfinished work, and it is with mixed feelings that I have received the congratulations and condolences of my friends since the announcement of my retirement from the hospital.

Some, with words of cordial welcome, invite me to come down from the high hill in the country to the delectable city, where everybody knows you cannot see the city for the houses; from Boston, they say, one can go to interesting places—even to Germany, and learn things, or to Egypt and see the world as good Bostonians do. But one asks himself, why go to strange countries when there are so many good things waiting to be done at home? Then I remember looking from my windows on the hill-top at Waverley at the extensive and beautiful view; beginning with Malden and College Hill in Medford on the northeast one can trace the horizon all the way around to Prospect Hill in Waltham in the northwest; it is not the least to me of the interesting things in this rare view of greater Boston that one can see the very place on Chestnut Hill whence Dr. Channing radiates his unfailing friendliness. Asking myself what the attraction is to go from this to the streets of the town, and he shut in to the seclusion of a city office, I am reminded of the old story of the Boston man who traveled widely in foreign lands. Finally arriving in Egypt, one day at the top of a pyramid he gazed eagerly about him and exclaimed, "Thank God, I have found a place where you can't see Tuft's College!" Now that the modern hospital is coming to be like a college with its several scientific departments, one might be expected perhaps, after long years and names being changed, to feel even thankful for a change of scene from Waverley.

But though there are many regrets, there is also, among the mixed feelings, that kindly effect of nature's law in declining years on the keenness of the trials of life. Stevenson describes the Master of Ballantrae, living with his granddaughter, and her loneliness after her two cousins, his grandsons, had gone away because they had quarrelled for love of her. She often sat with the old gentleman by the fireside, and it is told in the story that "when she wept he consoled with her like an



ancient man that has seen worse times and has come to think lightly even of sorrow." Yet there is truth in the Italian proverb that "you cannot tell the age of the heart by the gray of the hair," and as memory shifts the scene one's feelings may be cast down, or they may be lifted up by new proofs of the sympathy and encouragement of his friends. Again other natural feelings will arise, and their expression by somebody gives great relief, as when my good friend from Providence comes and tells me what to say, with his story of the retired bo'sun and the strong words of his message every morning to an imaginary captain. No one can deny that in the conflicting vexations of institution life there are times when sea-language seems to fit the case. So one may run the gamut of all the emotions in trying times, by day and night, with little profit, or again with much comforting of spirit. But after all a calmer philosophy should prevail; and while I thank Dr. Blumer for all the beautiful things he has said in his usual graceful way, I appreciate now especially his suggestion that the control of the emotions is a form of genius worth striving for. Thus accepting with equal mind both congratulation and sympathy, I find that my replies take spontaneous expression in such figure of speech as "it is like pulling oneself up by the roots," or "leaving the plough in the furrow." There must be some lingering regrets, for the roots grow deep in such a soil, and the desire is strong to turn the furrow around that beautiful curve yonder, now so near but that has seemed so far distant in the field for so many years. Yet I must testify to the beneficence of the principle of retirement from official duties which I can accept as a relief from care, while yet there may be the hoped-for opportunity to reach ideals not yet quite attained. But in this view of the situation there is great consolation in turning over all these interests to Dr. Tuttle, who has borne so large and helpful a share in the whole course of these labors. He has been more than an able and faithful assistant—he was always rather my loyal personal friend and partner in all our enterprises. Whatever was confided to him was always well done; without such complete freedom as he gave me, I have often realized that my work could not have been done as it was.

There is yet something appalling even in hearing these exceedingly generous estimates of an unfinished work, when one thinks what it might mean to have it fail. You must let me protest against some of the things that with great self-forgetfulness you have ascribed to me, but in which I have only borne my share. I cannot mention all, but one was Dr. Bancroft's reference to the efforts to improve the methods of our expert testimony in which others have always taken an active part; he, like the rest of you, is seeing the virtues that shine in his own eyes. We need not look far for one whose modest fidelity to the right in all things has made him conspicuous in this. It is to Dr. Jelly that what you have said belongs; and the very generous words he has spoken here make me very grateful.

I am glad to see here my old friend Dr. Gay; I am reminded of that first day—both his and mine—at the Boston City Hospital in 1872;



whenever I think of that day I always think of him and how each welcomed the other to the scene. Dr. Rowe has mentioned some reminiscences of things between us there, and some earlier ones in which we take mutual delight. We are always hearing that some of our most fortunate turning-points in life come in events that seem accidental or commonplace at the time, or even when disappointed in our most cherished plans. The delightful surprise of seeing Dr. Hurd and Dr. Brush, who have come so far to be here, prove that they are friends indeed; and Dr. Chapin's letter is like him; it is one more expression of the sincere and unchanging friendship with which he has always honored me ever since our first acquaintance.

What can I say to my dear Dr. Hurd, to whom I began to incline at first sight, upon whom I have come to lean more and more as my guide, counsellor and friend. He has told you some things about this, in his ever generous way, that I know are true; but the other things that both he and Dr. Folsom have said express an appreciation of what we have tried to do at the McLean Hospital so far exceeding anything in most hopeful imagination, that I dare not trust myself with words of acknowledgment.

I am surprised by what you are saying here because it seems to me that the new work at the Hospital is still at the stage of promise, rather than of accomplishment. Many of you remember, for you were there, the like occasion to this, when you gave me your congratulations for the completion of the new hospital eight years ago. I said then that it seemed to me we were only just ready to begin the real work we aimed to do. Some progress has surely been made since then, though it has been so much retarded for want of means; yet the problems have become plainer, and the way in which the original plan should be carried out appears clearer. I thought before coming here this evening that it might interest you to explain the plan of inquiry that should make most effective the important beginnings we have already gained in pathological chemistry. But there is no time now; this occasion is very different from anything I expected. I should like to say, however, in a word, that the logic of the whole proceeding at Waverley rests upon the principle that the sick insane person should be studied from the point of view of general medicine. The general physician in his clinical work must begin with physiology and recognize symptoms as disordered activity. Then comes the search to explain the functional derangement by interferences and possible structural changes. But the great modern progress in physiology is emancipating it from anatomical conceptions, and methods of teaching have wholly changed. You cannot deduce function from structure; you must study function as function, especially in psychiatry; and physiological chemistry underlies both structure and function. Mental physiology is but one branch of general physiology, and chemistry is subsidiary to all physiology. Now that we have the chemical department so well established at Waverley, I am glad to tell you that its continuance is assured; not only this, but there is certainly no intention of reducing the present clinical and pathological work. It gives me great pleasure to say also that, this very

day, the way has been made clear by a gift of \$6000, for the especial purpose of a two years' service of a physiological laboratory, under charge of a competent physiologist who is also expert in general physiology; he has done some excellent work in experimental physiology and is experienced as a teacher of physiology of the nervous system in medical schools. Thus, after many years, comes the assurance of having the plan of scientific research in the fundamental problems of psychiatry fully organized as the original conception. Two years is, of course, a short time to gain justifying results, but you see what was done in three years with chemistry, from which little result was anticipated. If the newly organized plan can only be well sustained I feel safe in believing that a large part of Dr. Folsom's encouraging prediction will come true in one-half of the ten years' time he has set for it.

But, this occasion, your presence here, and what it means to me! I am keeping away from the things of which my heart is full. I am almost afraid to speak of what Dr. Channing has said—you must see that I cannot speak it. And this beautiful loving cup! I shall always see your sincerity in its honest silver, your appreciation in its golden lining, and in its triple handles the welcoming grasp of your cordial friendship. In receiving all this and the kind words that have been spoken here, I feel that these are my richest rewards; and this evening will be among the happiest of my memories, all my days.

## American Medico-Psychological Association.

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### PROCEEDINGS OF THE SIXTIETH ANNUAL MEETING.

MONDAY, MAY 30, 1904.

The Association convened at 10 o'clock a. m., in the banquet hall of the Planters Hotel, St. Louis, Mo., and was called to order by the President, Dr. A. E. Macdonald, of New York, N. Y.

THE PRESIDENT.—The first pleasant duty that devolves upon me as your president is that of introducing to you the gentlemen who have responded to this invitation of the committee of arrangements, and will welcome you to the State and City wherein you meet; and first the Governor of the State, the Hon. A. M. Dockery. It is an open secret, though he is himself too modest to obtrude the fact, that the Governor is also a physician, and I know it will not lessen the pleasure you will have in hearing him, that he is a member of our profession as well as governor of his State.

GOVERNOR DOCKERY.—Since the opening of the Exposition the pleasant duty has devolved on me of welcoming a great many organizations holding their annual meetings in this city. I have performed that duty about three times a week, and my vocabulary has been practically exhausted by reason of the demands upon it, to extend in formal language welcoming words to these societies. I can say, however, that I have greeted no association that afforded me more real pleasure to welcome, than this convention of physicians.

Missouri never fails to express her old time hospitality. And yet I am not sure but that old time hospitality is a little decadent now, and necessarily so, because the world is growing so populous. Conditions, therefore, differ from those of fifty years ago. Then everybody was welcome, and it was considered almost an offense to offer remuneration for a night's lodging. My welcome may not take on that extreme old time form, but in the warmth of cordial greeting I welcome you to this city and its wonderful exposition. I am sure you will visit this greatest of all exhibits of the world's resources, and do not forget to visit the Missouri building. It is a beautiful architectural gem, and in convenience of

arrangement, beauty and richness of furnishing, it fittingly typifies the grandeur of our State. Go to the Missouri building, and you will receive an old-fashioned welcome.

The practice of your profession is a benediction to the human race. It restores the wasted frame and relieves both physical and mental ailments. Not all diseases are curable, but the duty so well performed by you leaves no opportunity for regrets, while the gratitude of these to whom you minister is the frank expression of their appreciation.

You are called to the responsible charge of great institutions to relieve the exhaustless necessities of those most sadly afflicted. Man's intellect is the essential attribute which lifts him above the animal world. Nothing can be more pitiful than a mind dethroned by disease. The brightest minds have yielded to its insidious blight, baffling so often the highest skill. The knowledge, however, that every known means has been employed brings more satisfying reward than the largest fee that could be paid.

Yours is essentially a mission of mercy and charity. Under your ministrations the afflicted are restored to health and happiness, and the baneful shadow of insanity gives place to the sunlight of reason. It is almost like the resurrection, because a mind dethroned leaves the vacuum of death. Its restoration brings joy and gladness to the patient and the physician, as well as the family and friends.

The researches of the medical scientist have made marvelous advances for the profession. The same progress noted in the practice of medicine and surgery is apparent in all avocations, but in none more so than in the medical profession. From the old time methods of treatment when blood-letting, quinine and calomel were substantially the only sheet anchors of the physician we have progressed until now new and effective remedies and improved methods are open to the medical world. I can remember when I was a young physician, just starting out to practice (it was not very long ago either, for I do not want the ladies to think I am old), when blood-letting was considered one of the essential remedies. Calomel and quinine were the staples. The first thing I did when visiting a patient, was to examine the tongue and the pulse. But when I prescribed remedies it did not make much difference as to the speed of the pulse, or the appearance of the tongue, I always gave calomel and quinine. (Laughter.)

The triumphs of the medical and surgical art to-day are available not only to the wealthy, but by means of public hospitals are within easy reach of the humblest and the poorest.

Many schools of medicine have sprung into existence, but with all the changes the old school of medical faith has maintained its supremacy.

In our time the work of the specialist is largely exploited. Confining himself to a single branch of medicine or surgery the practitioner accomplishes more for the ills of humanity than would be possible should his ability be distributed over the whole field. The education of the specialist must be as thorough as that of the general practitioner, but building upon this broad and sure foundation his energies and talents are then devoted

to a particular branch, and the result is advantageous both to the specialist and the people.

We are now on the threshold of the twentieth century, the most marvelous century of the ages, the age of steam, electricity and invention; and because of these mighty forces there has been more progress in the medical profession during the last thirty years than was made in two hundred years before. Taking a comprehensive view of all the avocations and industries of life, all the inventions of this age, we find that within the last fifty years we have seen more of real advancement than the world saw in ten thousand years previous to this time. I am glad to know that the profession with which I was once actively identified has kept pace with the spirit of the times, and that no branch of the profession has done more to bring health and happiness to the human race than that represented by the men who have charge of the asylums of the country. (Applause.)

The family physician becomes unconsciously the family mentor. His knowledge of physical and mental defects, if there be any, makes it possible for him to advise where none else could. In the domain of confidential intercourse with the family he exercises exclusive prerogative. Life and happiness are in his hands. Rightly directed his opportunity for good is practically limitless.

The lame, the halt, the blind, and all those otherwise afflicted appeal to the wisdom and learning of the physicians. The dark, cold and stormy night finds him as ready to perform an errand of mercy as when the sun is bright and the air balmy, when the soft southern wind first stirs the tender leaves of the springtime.

Your profession, in its relation to other avocations by which men gain a livelihood, in its tender ministrations to mankind, towers above them all as the mountain peak towers above the level of the plain. It is essentially beneficent in its influences and effects. Countless thousands bless and laud the physician when by some discovery he adds to the storehouse of medical skill, and is thus able to further restrain the ravages of disease.

The physician does more real charitable and practical work at less compensation, than the members of any other profession. Somewhere in the future when rewards are distributed, I think possibly the physician will have one more jewel in his crown of rejoicing than the representative of any other avocation of this life.

Both the nation and the States have dealt wisely and progressively with the propositions of prevention and cure of disease. No session of a legislature passes without some statutory contribution intended to promote the general welfare. Congress is also equally devoted in its efforts to protect the people. Stringent, though merciful, enactments are enforced with absolute impartiality. The members of your celebrated profession are thus encouraged in their best efforts for the eradication of those scourges which threaten and destroy our homes.

The science of medicine and surgery has already accomplished much, but more will yet be done. The spirit of this century forbids stagnation.

The medical explorer will still bring to light new discoveries which will inure to the health and happiness of the people.

And now, gentlemen, permit me again, in behalf of this imperial commonwealth, to extend to you a most hearty and cordial welcome to the chief city of the Louisiana Purchase. Missouri is proud to welcome you as her guests. It is hardly necessary that I should say anything to you about Missouri, about her greatness and glory, the development of her resources, her splendid State government, and the fact that we are devoted to her. No other State furnishes the amount of zinc that we have in the southwest. Some of the richest iron and lead mines in the world are in the southeast. There are great counties which produce apples and peaches, and where we will yet have fifty millions of people. It is scarcely necessary to speak of Missouri's horticultural and agricultural resources, or of the manufacturing industries of her greatest city in which there is more wealth to-day than was possessed by the thirteen colonies a century ago. Yet proud as we are of this commonwealth, the contribution to the nation of the statesmanship of Thomas Jefferson, we are prouder still of being a State of the American Union. I speak as a Missourian but I exult still more in the fact that I am an American citizen. Our State is only one forty-fifth of this great American Republic, but if you do not believe what I tell you about Missouri's greatness go out and see what we have at the Exposition. Note the exhibits of New York and other States, and when you do I am sure you will agree that the Exposition now in progress surpasses all previous Expositions in the history of the world. It is twice as great as the Chicago Exposition, and six times greater than the Philadelphia Exposition, wonderful as people thought them to be. You will have before you the progress of the world. In this display of our country's resources we are justly proud that we are citizens of the mightiest republic known to history.

DR. WOODSON.—In view of the fact that Governor Dockery is not only the Governor of the State, but a member of the profession, I move that the Governor be made an honorary member of this Association for this occasion. Carried unanimously.

GOVERNOR DOCKERY.—I make my most grateful acknowledgment.

THE PRESIDENT.—The next speaker was expected to have been the Mayor of the city, the Hon. Rolla Wells. He has however been prevented from coming and has sent as his representative, Dr. Simon, President of the Board of Health of this city, whom I now have the honor to introduce to you.

DR. SIMON.—The Honorable Rolla Wells, Mayor of the city of St. Louis, being unable, much to his regret, to attend this meeting, has asked me to serve in his place. His Honor in making this selection was imbued



not with the idea that I could make an address adequate to the occasion, but rather that being the Health Commissioner of the city of St. Louis, I would take a deep interest in matters which will come before this Association, and this, indeed, I do.

I cannot hope to fill his place to your entire satisfaction, but shall be content to essay the rôle of what you gentlemen sometimes call the "psychic equivalent."

If it is true that in nature there is nothing great but man, and in man nothing great but mind, then of necessity this Congress of Psychologists is the most important and far-reaching of all the 300 or more conventions which are to be held in St. Louis during the World's Fair period.

We shall see gathered about us during the next few months men representing every line of human enterprise and every phase of human thought. Here at the greatest Exposition the world has ever seen will be heaped the treasures of the earth. Science will unfold here her most recent and most wonderful discoveries. Art will be there to dazzle the beholder with the magnificence and splendor of her work. Electricity, transportation, the varied industries, machinery, aeronautics, education, social economy, each of these will claim the attention of the visiting multitudes. The peoples of every race and clime, from the Eskimo in his furs to the South Sea Islander, transplanted bodily with all their environments will teach the lesson of universal brotherhood. But far above and beyond all this gorgeous panorama is that with which you are engaged, the mind of man. Others may deal with railroads or electricity, with painting or sculpture, with numberless human interests, each one in its own sphere, but you are dealing with that which created and evolved all these and without which they could not even have been conceived. Taken in its ultimate analysis, the World's Fair with all its accessories, animate and inanimate is a psychological event, it is the composite human brain of twenty centuries.

And yet this convention will come and go, and the true worth of the psychologists and alienists of this country will not be appreciated. The great questions, for example, of the prevention of crime, of responsibility and other questions so vital to our government, are scarcely heeded by the people. They do not realize what it is for the alienist to "fetter strong madness in a silken thread." The substitution of music and flowers for chains and dungeons has been so gradual as to be to most persons imperceptible; and I hope that one of the benefits accruing to humanity from this 60th Convention of the American Medico-Psychological Association will be the enlightenment of the public regarding the manner of caring for the insane as compared with the harsh methods of a few decades ago.

I am not here, however, to break in on affairs psychological, and you are undoubtedly anxious to proceed with your program. I have the honor, therefore, to bid you on the part of the city of St. Louis, a profoundly sincere welcome.



I speak the sentiment of every one of the 700,000 citizens of St. Louis when I say the city is yours to command. St. Louis has some times been called slow. She is slow in some things. She is slow to take offense from her sister cities. She is slow to grasp at every financial bauble the tempter holds out to her: That is why she is called the *solid* city. She is slow to open her portals for the departure of her guests once they have called. She is slow to fall into many of the ways of the East, because she is distinctly a Western city. She has laid off her buckskins and her holster, but she is slow to step into patent leathers and part her hair in the middle. She is, to use one of your own expressions, *in the borderland*. But she yields to no city in the world in hospitality. Those of you who have been in the West know what Western hospitality means; those of you who have not will carry home with you the memory of happy hours spent with women as fair and men as brave as America can produce.

Once more then Mr. President in conclusion, I bid you a warm, sturdy, Western welcome.

THE PRESIDENT.—The closing address of welcome will be made by the President of the Missouri State Medical Society, Dr. Wm. G. Moore, whom I have the honor to introduce.

DR. MOORE.—You have given me the pleasantest duty that I could possibly conceive on this or any other occasion, the duty of bidding the stranger welcome within our gates. Did I not know the medical profession as I do, I should feel my inadequacy in the presence of these people who deal entirely with the brain. You ladies and gentlemen, would intimidate me if I went back to the thought only that you deal with brains, brains, brains. There is a saving fact, however, in the belief that *all* the brains you deal with are not better than my own and my presence here is the result of my position in the State Medical Society. Only this and nothing more. We are in the welcoming business in St. Louis. We have welcomed everybody from every quarter of the known world. We have welcomed the Igorrotes, the head hunters, and now it is our supreme pleasure to welcome the head fixers. (Laughter.)

"Cans't thou not minister to a mind diseased? Pluck from the memory a rooted sorrow?" If you can, then I declare that since the Prince of men was on this earth no nobler mission has ever been given to those made in his image than yours. I could use words of welcome, until they would grow mountain high, but I believe that platitudes shall have no place in welcoming this Association which is, I learned this morning, the oldest National medical organization in America. In St. Louis or in any other city in the world you would be given a warm welcome. I thought this morning of the picture of Pinel at Salpêtrière removing the shackles from the insane. It was that picture which came to my mind when these gentlemen were good enough to ask me to fill this position. All of you have seen it. All appreciate it. All remember the lessons

taught by the artist's brush. The shackles are being removed from a typically mind-dethroned, reasonless woman and while the thoughtful quiet-faced Pinel who knew so much of what that meant, was engaged, a devoted nurse is kneeling and kissing the unheeding hands. From that day when the moral, humane treatment of the insane was inaugurated to this good hour, the followers of Pinel have constantly contributed to the welfare of humanity, have constantly broken away from the chains and fetters until now the place I used to dream of as a child as the most hideous corner of the earth has become really a garden for the cultivation of the remnants of human reason. Are you welcome when we recall these things? Thrice welcome.

On the other hand, gentlemen, I hope you will pardon me if I digress for a while in order to refer to Governor Dockery's address. In speaking of our wonderful progress he mentioned the surgical hospital. That is getting to be a chestnut, that surgical hospital. I want to recall the fact that medicine especially has done more for the benefit of the human race, has saved more lives, and will continue to save more lives by one thing alone than all the surgery, and that is by the use of diphtheria antitoxin. (Applause.) I notice that the ladies of various societies and clubs talk a good deal about "mere man." The ladies probably understand a good deal better than I do about "mere man." I am not a surgeon, I am a "mere" doctor. As Jonathan Hutchinson said, "I am a specialist on the skin and all that it contains." I am a mere doctor and I say in the presence of all the surgeons that can be assembled on the face of this earth if they will recall the fact that through the labors of medical men Asiatic cholera, diphtheria, small-pox, yellow fever, typhus fever, and all the great epidemics of the world have become but reminiscences, shadows of the past, and that this was brought about before Christian science, osteopathy, or any fads of this kind were born. Now, if I am touching on anybody's corns when I say Christian science, please pull your feet a little further backward. (Laughter.) Now then gentlemen, we are progressing toward the cure of tuberculosis, and if we accomplish that your surgeons will be tin horn artists in the rear of the great brass band procession of the world. (Laughter.) They have assumed everything. The surgeon wipes his knife in public, looks wise and looks fierce, and will tell you what he is going to do and often tells you what he can't do, and when there is a death from an operation, he says it was perfectly successful, but the technique was a little defective, perhaps the nurse didn't have clean hands.

Then there is another thing that I wish to bring to your attention as a physician and when I am in the presence of physicians, I feel that I am at home. I never appeared in the presence of such an assembly in my life that I did not feel that I should take you by the hand and say "You are my professional brethren." Another thing to which Governor Dockery referred is the doctor in politics, but until the doctor realizes that he has political power, you will never be able to know what the medical profession should have and would have just as sure as it is demanded. But

we have been such amiable fellows, working quietly, doing unremittingly for those that demanded our services, working for nothing, but sweet charity, we have neglected our rights. Until the medical profession of America is strongly organized (and much has been done toward this end in the last few years) until you rise to the full stature of your political strength, you will not know what a lion you are in the menagerie of men. Did you ever see a delegation to the legislature from a city? Did you ever hope for any reform, did you ever think they could not be bought when you looked into the faces of such fellows? If you did, you have optimism that I know nothing about. The most discouraging thing to my mind on the face of this earth is the sight of a delegation from a city. They are the wharf-rats, the saloon bums, the riff-raff, the scum, and now and then a man to keep up the respectability of the government. God made the country and man made the city. That is the explanation. You may hope for nothing in the way of reform that does not pay somebody something in the coin of the realm and I can say that if you do not use your vote you will wake up some morning to find Lydia Pinkham president of the United States. Now Lydia has been getting out a preparation especially recommended to ladies and gentlemen who want a fine complexion. The W. C. T. U., for whom I have the most profound regard, has been asked to co-operate in the exposure of the character of this beautifier. The Ladies Home Journal under the supervision of Edward Bok, (God bless him), brings out a list which you and I are permitted to study given by the Massachusetts State analyst which shows that about an ounce of a certain "remedy" will make a buck Indian walk on his tip toes, and why? Because it contains thirty per cent more or less real alcohol. Now the authorities of the Indian Territory, which some of you ladies and gentlemen would refer to as the wild and woolly west, prohibited the sale of the most wonderful remedy in the world. Know what it is? "Peruna." Why? Because the bucks all went on the warpath and their white brethren and the squaws did likewise.

Now as to another matter. When the armies had done their excellent work and were ordered home from Cuba and the Spaniard had withdrawn and left entrenched one enemy that could not be dislodged by revolver or bayonet, to menace the work, do you remember what happened? A company of five gentlemen, doctors, was marshalled quietly by the President and bidden to take all the authority and told to go down into that pest hole, Cuba, and find out what it was that caused yellow fever and how to eradicate it, with the result that the desert has been made to blossom as the rose. There is now no epidemic wave; there are sanitary conditions, and prosperity in the island. At what cost? A young man, Lazear by name, when it was proven that the infection of yellow fever could not be conveyed by contact alone, bared his arm and allowed a contaminated mosquito to bore into his tissues and infect him and poison him and kill him. If ever a more Christ-like thing were done on this earth than the sacrifice of this young man's life that others could live,

it is beyond my knowledge at this moment. (Applause.) Well may you applaud. Well may you applaud, and still I doubt if there are half a dozen in this room that know the names of the members of that commission which has done more for the world's benefit than all the armies that have ever been marshalled, or that ever will be marshalled in the history of the ages. The eradication of yellow fever will do more for the world than all the battles ever fought. Strange that when the President of the United States was forming the Panama commission in which sanitation plays so conspicuous a part, not one single doctor's name was mentioned or even suggested. Why? Because you have been playing the small fiddle so long that you are afraid to strike the cymbals. If you will demand what is due, you must be granted it. The politician is a wise soothsayer and prognostician and you let the pulse of the American medical profession be felt once by the politician and he will know exactly what the future of the case will be. The prognosis will be made at once and the treatment will be once accorded fairly to the greatest and most wondrous medical profession in the world, because already you have progressed beyond the empirical in dealing with stricken man.

If I could command words to give the welcome which I feel I should be glad indeed. The gates of the city are open to you, the doors of our homes are open to you, the hearts of our citizens are open to you, and we bid you enter and welcome. (Great applause.)

THE PRESIDENT.—There are certain contingencies when the desire of a body in meeting assembled is so apparent that it is not necessary to go through with the usual formalities of a motion and so assuming that there is no objection and that it is the desire of my audience that the gentlemen who have so eloquently and kindly addressed us should receive your thanks for their welcome, I proceed to convey them. And now, gentlemen, in behalf of the Association I give you heartiest thanks for your cordial words of welcome.

The Secretary made the following announcements:

That telegrams or letters of regret had been received from Drs. Carlos F. Macdonald, G. Alder Blumer, E. N. Brush, B. D. Evans, Michael Campbell, and R. H. Hutchings.

That a letter of condolence on the death of Dr. Richardson had been received from Dr. Spence of Burntwood near Litchfield, England.

That Dr. Wesley Mills had written thanking the Association for his election to honorary membership.

That Dr. Milligan had acknowledged the receipt of the resolution in respect to prison service renewed by the Association last year.

That Mrs. A. B. Richardson had written a warm letter of appreciation for the tender thought of her husband, for the letters and expressions of sympathy received, and for the floral tribute sent by the Association.

#### REPORT OF THE COUNCIL.

The Secretary read the following reports from the Council:

Pursuant to a provision of the Constitution that whenever vacancies occur in any of the offices of the Association, they shall be filled by the Council until the next annual meeting, the Council has elected Dr. A. E. Macdonald, President, to succeed Dr. A. B. Richardson, deceased; Dr. T. O. Powell, Vice-President, to succeed Dr. Macdonald; and Dr. C. R. Woodson, Councilor for *one year* to succeed Dr. E. C. Runge, deceased.

It was moved that the report be accepted and adopted and the action of the Council in the election of officers be approved. Carried unanimously.

THE SECRETARY.—The Council recommends that the Nominating Committee be instructed to nominate a delegate and alternate to the Executive Committee of the Congress of American Physicians and Surgeons.

On motion the report of the Council was accepted and adopted.

THE SECRETARY.—The Council recommends an appropriation of \$200 for the JOURNAL OF INSANITY for the fiscal year beginning May 1st, 1904.

On motion the report was accepted and adopted.

THE SECRETARY.—The Council recommends that dues for active members for the coming year be placed at \$5.00 and for associate members at \$2.00.

On motion the report was accepted and adopted.

The Secretary reported that the Council recommended the following for membership in the Association:

*For Active Membership.*—Maurice C. Ashley, M. D., Middletown, N. Y.; Albert Moore Barrett, M. D., Hathorne, Mass.; J. G. Furnish, M. D., Lakeland, Ky.; Richard H. Hutchings, M. D., Ogdensburg, N. Y.; G. H. Manchester, M. D., New Westminster, B. C.; Harry William Miller,

M. D., Taunton, Mass.; Flavius Packer, M. D., New York, N. Y.; Middleton L. Perry, M. D., Parsons, Kansas; Arthur F. Shepherd, M. D., Dayton, Ohio; Wm. A. Stoker, M. D., Evansville, Ind.; Geo. Stockton, M. D., Columbus, Ohio; Geo. H. Torney, Jr., M. D., Utica, N. Y.; Geo. T. Tuttle, M. D., Waverley, Mass.; M. Nelson Voldeng, M. D., Cherokee, Ia.; Wm. A. White, M. D., Washington, D. C.

*For Associate Membership.*—George Sheldon Adams, M. D., Yankton, S. Dak.; Joseph B. Betts, M. D., Buffalo, N. Y.; Benjamin W. Bohrer, M. D., Taunton, Mass.; Isabel A. Bradley, M. D., Columbus, Ohio.; Ida J. Brooks, M. D., Westboro, Mass.; Edson C. Brown, M. D., Massillon, Ohio; Mary Christiancy, M. D., Norristown, Pa.; Homer E. Clarke, M. D., Pontiac, Mich.; Earle E. Gaver, M. D., Columbus, Ohio; Harold C. Goodwin, M. D., Concord, N. H.; Geo. T. Harding, Jr., M. D., Columbus, Ohio.; Chas. L. Harmer, M. D., Massillon, Ohio.; D. E. Harris, M. D., Massillon, Ohio; Theodore A. Hoch, M. D., Worcester, Mass.; Clifford J. Huyck, M. D., Westboro, Mass.; Geo. H. Maxfield, M. D., Concord, N. H.; James M. McGeorge, M. D., Massillon, Ohio; John D. O'Brien, M. D., Massillon, Ohio; Wm. W. Richardson, M. D., Columbus, Ohio; Clarence J. Slocum, M. D., Pleasantville, Westchester, Co., N. Y.; Calvin B. West, M. D., Central Islip, N. Y.; J. W. Wherry M. D., Clarinda, Iowa; G. H. Williams, M. D., Columbus, Ohio.

The names thus submitted were placed on a ballot as required by the Constitution for action at a subsequent session.

#### TREASURER'S REPORT.

The following report was read by the Treasurer:

C. B. BURR, Treasurer, in account with the American Medico-Psychological Association.

DR.		DR.
May 1, 1903.	To Balance.....	\$1,315.64
May 1, 1904.	To Dues from Active Members.....	1,225.25
	To Dues from Associate Members.....	194.10
	To Interest .....	44.76
	To Sale of Transactions.....	11.75
	To Sale of Gummed Lists.....	1.00
	To Sale of Blackburn's Autopsies.....	1.63
	To Sale of Postage.....	20.00
CR.		CR.
May 1, 1904.	By Printing Transactions, Lists of Members, Reprints .....	\$ 844.90
	By Mailing Cases.....	19.50
	By Express on Reprints and Transactions .....	80.47



By Stationery, Miscellaneous Printing, Programs & Ballots .....	\$ 77.05
By Stenographer and Clerical Hire....	167.60
By Secretary's Expenses at Washington,	44.25
By Appropriation, AMERICAN JOURNAL OF INSANITY .....	200.00
By Postage .....	106.00
By Telegraphing .....	14.31
By Cuts for Papers.....	86.05
By Registry Cards .....	4.50
By Index Medicus .....	5.00
By Floral Design Dr. Richardson.....	25.00
By Portfolio .....	2.00
By Amount Newton M. Shaffer, Treas- urer, Apportionment, Printing Trans- actions of Congress .....	199.81
Balance to New Account: Genesee County Savings Bank, \$110.92 First National Bank, Savings Ac- count .....	750.13
First National Bank, Commer- cial Account.....	76.64
	<hr/>
	\$2,814.13    \$2,814.13

The reasons that the Association's expenses have not been met by the revenue during the last year are two:

1st. The cost of the proceedings of the Congress, taxed according to membership upon the different societies, for this Association amounted to \$199.81.

2nd. The transactions of this Association were a third larger than those of any previous year and correspondingly more expensive. Aside from their bulk also, the Association has been put to considerably increased expense on account of the large number of illustrations. It is thought that ordinarily the revenue from dues and other sources of income will be sufficient to meet current expenses and indeed leave a small surplus as has hitherto been the case during the years of my treasurership.

*C. B. Burr, Treasurer.*

THE PRESIDENT.—You have heard the report of the Treasurer. What is your pleasure regarding it? The Treasurer suggests that it be referred to the Auditor about to be elected. All in favor of this disposition of the matter, please say Aye. Carried.

THE PRESIDENT.—The chair appoints the following members to serve as Nominating Committee:



Dr. J. Percy Wade, of Catonsville, Md.

Dr. Wm. M. Edwards, of Kalamazoo, Mich.,

Dr. W. A. Gordon, of Winnebago, Wis.

A recess was then taken for the purpose of registration.

The following members were present during the whole or a portion of the meeting:

Allen, H. D., M. D., Milledgeville, Ga.

Ashley, Maurice C., M. D., Medical Superintendent State Homeopathic Hospital, Middletown, N. Y.

Bancroft, Chas. P., M. D., Superintendent New Hampshire State Hospital, Concord, N. H.

Beemer, Nelson H., M. D., Medical Superintendent Mimico Asylum for the Insane, Toronto, Ont.

Beutler, W. P., M. D., Superintendent Milwaukee Asylum for the Chronic Insane, Wauwatosa, Wis.

Burgess, T. J. W., M. D., Medical Superintendent Protestant Hospital for the Insane, Montreal, Que. (President-Elect.)

Burr, C. B., M. D., Medical Director Oak Grove Hospital, Flint, Mich. (Vice-President-Elect.)

Burrell, Dwight R., M. D., Resident Physician Brigham Hall, Canadaiqua, N. Y.

Calder, D. H., M. D., Assistant Physician, State Mental Hospital, Provo City, Utah. (Associate.)

Caples, Byron N., M. D., Superintendent Waukesha Springs Sanitarium, Waukesha, Wis.

Chaddock, Chas. G., M. D., Professor Nervous and Mental Diseases, St. Louis University, St. Louis, Mo.

Chamberlain, G. L., M. D., Medical Superintendent Upper Peninsula Hospital for the Insane, Newberry, Mich.

Clark, J. Clement, M. D., Superintendent Springfield State Hospital, Sykesville, Md.

Coe, Henry Waldo, M. D., Medical Director Crystal Springs, Portland, Ore.

Crandall, Geo. C., M. D., Professor Internal Medicine, St. Louis University, St. Louis, Mo.,

Crumbaker, W. P., M. D., Superintendent Independence State Hospital, Independence, Ia.

Dent, E. C., M. D., Medical Superintendent Manhattan State Hospital, West, Ward's Island, New York, N. Y. (Secretary.)

Dewey, Richard, M. D., Physician-in-Charge, Milwaukee Sanitarium, Wauwatosa, Wis.

Dill, D. M., M. D., Superintendent Essex County Hospital for the Insane, Newark, N. J.

Drewry, Wm. F., M. D., Superintendent Central State Hospital Petersburg, Va.

Edwards, Wm. M., M. D., Medical Superintendent, Michigan Asylum for the Insane, Kalamazoo, Mich.

Eyman, Henry C., M. D., Medical Superintendent, Massillon State Hospital, Massillon, O.

French, Edward, M. D., Superintendent Medfield Insane Asylum, Hard-  
ing, Mass.

Fry, Frank R., M. D., Professor Diseases of the Nervous System, Medi-  
cal Department Washington University, St. Louis, Mo.

Furnish, J. G., M. D., Superintendent Central Kentucky Asylum for the  
Insane, Lakeland, Ky.

Gordon, W. A., M. D., Superintendent Northern Hospital for the Insane,  
Winnebago, Wis.

Graves, Marvin L., M. D., Superintendent Southwestern Insane Asylum,  
San Antonio, Texas.

Guthrie, L. V., M. D., Superintendent West Virginia Asylum, Hunting-  
ton, W. Va.

Harmon, F. W., M. D., Superintendent Longview Hospital, Cincinnati,  
Ohio.

Hill, Chas. G., M. D., Physician-in-Charge, Mt. Hope Retreat, Baltimore,  
Md.

Hill, Gershom H., M. D., Formerly Superintendent Independence State  
Hospital, Des Moines, Ia.

Hobbs, A. T., M. D., Medical Superintendent Homewood Sanitarium,  
Guelph, Ont.

Houston, J. A., M. D., Superintendent Northampton Insane Hospital,  
Northampton, Mass.

Howard, Adams B., M. D., Superintendent Cleveland State Hospital,  
Cleveland, Ohio.

Hughes, Chas. H., M. D., Editor Alienist and Neurologist, 3857 Olive  
St., St. Louis, Mo.

Hurd, Arthur W., M. D., Superintendent Buffalo State Hospital,  
Buffalo, N. Y.

Kilbourne, Arthur F., M. D., Superintendent Rochester State Hospital,  
Rochester, Minn.

Kunst, A. H., M. D., Superintendent West Virginia Hospital for the  
Insane, Weston, W. Va.

Lane, Edward B., M. D., Superintendent Boston Insane Hospital, New  
Dorchester, Mass.

Langdon, F. W., M. D., Medical Director Cincinnati Sanitarium, 5  
Garfield Place, Cincinnati, Ohio.

Lewis, Joseph M., M. D., Formerly Superintendent Cleveland State Hos-  
pital, Rose Bldg., Cleveland, Ohio.

Lyons, A. J., M. D., Superintendent Second Hospital for the Insane,  
Spencer, W. Va.

Macdonald, A. E., M. D., Superintendent Manhattan State Hospital,  
East, Ward's Island, N. Y. (President.)

MacPhail, Andrew, M. D., Pathologist Protestant Hospital for the Insane, Montreal, Que.

Mayer, Edward E., M. D., Neurologist Presbyterian Hospital, 524 Penn Ave., Pittsburg, Pa.

McBride, James H., M. D., Medical Director Southern California Sanitarium for Nervous Diseases, Pasadena, Cal.

Mead, L. C., M. D., Superintendent South Dakota Hospital for the Insane, Yankton, S. Dak.

Meredith, H. B., M. D., Superintendent State Hospital for the Insane, Danville, Pa.

Mitchell, Thos. J., M. D., Superintendent State Insane Hospital, Asylum, Miss.

Nichols, John H., M. D., Superintendent State Hospital, Tewksbury, Mass.

Noble, Alfred I., M. D., Assistant Superintendent Worcester Insane Hospital, Worcester, Mass.

Page, Chas. W., M. D., Medical Superintendent, Danvers Insane Hospital, Hathorne, Mass.

Palmer, H. L., M. D., Superintendent Utica State Hospital, Utica, N. Y.

Perry, Middleton L., M. D., Superintendent State Hospital for Epileptics, Parsons, Kans.

Pilgrim, Chas. W., M. D., Medical Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.

Powell, Theophilus O., M. D., Superintendent Georgia State Sanitarium, Milledgeville, Ga.

Punton, John, M. D., Superintendent Private Sanitarium, Kansas City, Mo.

Redwine, J. S., M. D., Medical Superintendent Eastern Kentucky Asylum for the Insane, Lexington, Ky.

Riggs, C. Eugene, M. D., Professor of Nervous and Mental Diseases University of Minnesota, St. Paul, Minn.

Robinson, J. F., M. D., Superintendent State Hospital, No. 3, Nevada, Mo.

Rogers, Jos. G., M. D., Medical Superintendent Northern Indiana Hospital, Longcliff, Logansport, Ind.

Russell, Wm. L., M. D., Medical Inspector of Institutions for the Insane, State Commission in Lunacy, Albany, N. Y. (Associate.)

Scribner, Ernest V., M. D., Medical Superintendent Worcester Insane Asylum, Worcester, Mass.

Searl, Ernst V., M. D., Superintendent Fair Oaks Villa, Cuyahoga Falls, Ohio.

Sprague, Geo. P., M. D., Proprietor and Superintendent High Oak Sanatorium, Lexington, Ky.

Smith, G. A., M. D., Superintendent Manhattan State Hospital at Central Islip, Central Islip, N. Y.

Smith, S. E., M. D., Medical Superintendent Eastern Indiana Hospital for the Insane, Richmond, Ind.

Stedman, Henry R., M. D., Medical Superintendent "Bournewood," Private Hospital for Mental Diseases; also Trustee Taunton Insane Hospital, Brookline, Mass.

Tomlinson, H. A., M. D., Superintendent St. Peter State Hospital, St. Peter, Minn.

Turner, Jno. A., M. D., Superintendent North Texas Hospital for the Insane, Terrell, Tex.

Tuttle, Geo. T., M. D., Medical Superintendent McLean Hospital, Waverley, Mass.

Voldeng, M. N., M. D., Superintendent Cherokee State Hospital, Cherokee, Ia.

Wade, J. Percy, M. D., Medical Superintendent Maryland Hospital for the Insane, Catonsville, Md.

Wagner, Chas. G., M. D., Superintendent Binghamton State Hospital, Binghamton, N. Y.

Wentworth, Lowell F., M. D., Deputy Executive Officer State Board of Insanity, 36 State House, Boston, Mass.

Wherry, J. W., M. D., Assistant Physician Clarinda State Hospital, Clarinda, Ia. (Associate.)

White, M. J., M. D., Medical Superintendent Milwaukee Hospital for the Insane, Wauwatosa, Wis.

Wilsey, O. J., M. D., Physician-in-Charge Long Island Home, Amityville, L. I., N. Y.

Witte, Max E., M. D., Superintendent Clarinda State Hospital, Clarinda, Ia.

Woodbury, Chas. E., M. D., Superintendent Massachusetts Hospital for Dipsomaniacs and Inebriates, Foxborough, Mass.

Woodson, C. R., M. D., Superintendent State Hospital No. 2, St. Joseph, Mo.

Work, Hubert, M. D., Superintendent Woodcroft Hospital, Pueblo, Colo.

Worsham, B. M., M. D., Superintendent State Insane Asylum, Austin, Tex.

#### Visitors and guests of the Association were as follows:

Allen, M. N., Esq., Commissioner Central Kentucky Asylum for the Insane, Louisville, Ky.

Applegate, C. F., M. D., Superintendent Mt. Pleasant State Hospital, Mt. Pleasant, Ia.

Braid, Milton, M. D., Superintendent Western Kentucky Asylum for the Insane, Hopkinsville, Ky.

Dockery, Hon. A. M., Governor of Missouri.

Guest, Jas. W., M. D., Member Board of Trustees, Central Kentucky Asylum for the Insane, Lakeland, Ky.

Hopkinson, Samuel W., Esq., Trustee, Danvers Insane Hospital, Bradford, Mass.

Keith, Frank L., M. D., Superintendent State Hospital No. 4, Farmington, Mo.

Laughlin, C. E., M. D., Medical Superintendent Southern Indiana Hospital for the Insane, Evansville, Ind.

Moore, Wm. G., M. D., President Missouri State Medical Society, St. Louis, Mo.

Rand, Mrs. A. L., Trustee Medfield Insane Asylum, Harding, Mass.

Simon, Jno. H., M. D., Health Commissioner, St. Louis, Mo.

Tiedmann, Ernest F., M. D., Professor of Pathology and Bacteriology Washington University, St. Louis, Mo.

Uhls, L. L., M. D., Superintendent Osawatomie State Hospital, Osawatomie, Kans.

Williams, Berthold A., M. D., Senior Resident Physician Cincinnati Sanitarium, Cincinnati, O.

The Association reconvened at 11.15. Dr. Powell, Vice-President, in the Chair.

The Presidential address by Dr. A. E. Macdonald was then delivered. (To be published in the AMERICAN JOURNAL OF INSANITY for October.)

DR. BURR.—I move that we give the President a vote of thanks for his address and express our appreciation of his courage in coming in spite of illness, and our great gratification that he is able to preside at this meeting.

Carried unanimously by a rising vote.

THE PRESIDENT.—I am extremely indebted to you and can only ask that you will regard these desultory notes somewhat in the light of despatches such as we read every day from another source, which have the standard head-line "Delayed in Transmission;" which are to be elaborated later; and for which you, like another deliberative body, will grant "leave to print."

Adjourned.

#### TUESDAY, MAY 31, 1904.

The meeting was called to order by the President at 10 a. m.

On motion of Dr. Edwards the Secretary was instructed to cast the ballot of the Association for the candidates recommended for membership yesterday by the Council.

The Secretary announced that the ballot had been cast and the candidates were declared duly elected.

The following report was received from the Nominating Committee:

The Nominating Committee respectfully recommends that the following gentlemen be elected to the several positions designated:

For President: Dr. T. J. W. Burgess, of Montreal, Que.

For Vice-President: Dr. C. B. Burr, of Flint, Mich.

For Secretary and Treasurer: Dr. E. C. Dent, of New York, N. Y.

For Councilors: Dr. B. D. Evans, of Morris Plains, N. J.

Dr. C. R. Woodson, of St. Joseph, Mo.

Dr. E. V. Scribner, of Worcester, Mass.

Dr. J. S. Turner, of Terrell, Tex.

For Auditors: Dr. A. B. Howard, of Cleveland, O.

Dr. A. F. Kilbourne, of Rochester, Minn.

Delegate to Congress of American Physicians and Surgeons,  
Dr. E. A. Macdonald, of New York.

Alternate, Dr. E. N. Brush, of Towson, Md.

Respectfully submitted.

J. PERCY WADE,  
WM. M. EDWARDS,  
W. A. GORDON.

THE PRESIDENT.—You have heard the report of the Nominating Committee. What is your pleasure regarding it? It is within the province of the Association to order in what way the election shall be held.

On motion the Secretary was instructed to cast the ballot for the officers nominated and they were declared duly elected to the several positions.

DR. BURR.—It may be in order to announce that with the exception of the President and Vice-President, the officers elected, Secretary-Treasurer, Councilors, Auditors, and all others, take office immediately.

The annual address to the Association under the title of "A Review of the Growth of Knowledge of Relations of the Mind and Nervous System" was then read by Professor Chas. G. Chaddock, of St. Louis.

DR. C. G. HILL.—I move that the Association extend a vote of thanks to Dr. Chaddock for his very able address.

DR. BURR.—We have rediscovered this morning if not that there is indeed no new thing under the sun, that at least much of

the so-called new is old. The Association has listened in the past to many excellent addresses but I am sure to none with greater interest or appreciation than this of Dr. Chaddock. I most heartily support the motion of Dr. Hill.

The motion of Dr. Hill was carried by a rising vote.

THE PRESIDENT.—Professor Chaddock, I take great pleasure in extending the thanks of this Association to you for your address.

#### PAPERS.

The following papers were presented:

"Paranoia—Especially with Reference to its Definition and its So-Called Acute Form," Chas K. Mills, M. D., Philadelphia, Pa. Read by Title.

"A Medico-Legal Case of Well Poisoning—With a Plea for a Hospital Observation Law." Henry R. Stedman, M. D., Brookline, Mass.

"Two Border-Line Cases." C. Eugene Riggs, M. D., St. Paul, Minn.

"A Consideration of the General Conditions Associated with Insanity and Their Connotations, Statistically and Otherwise." H. A. Tomlinson, M. D., St. Peter, Minn.

"The Relative Importance of Predisposing and So-Called Exciting Causes in the Etiology of Mental Disease." Carlos F. Macdonald, M. D., New York, N. Y. Read by title.

The Secretary read the following report:

#### REPORT OF THE BOARD OF EDITORS OF THE AMERICAN JOURNAL OF INSANITY.

*To the American Medico-Psychological Association.—Gentlemen.*—In behalf of the Editorial Board of the AMERICAN JOURNAL OF INSANITY, I present herewith a statement of the operations of the Journal during the past year, together with vouchers, with the request that they be referred to the Auditors.

It will be noted that, owing to a falling off in advertising and an increase in the cost of production of the Journal, there is a temporary deficit of about \$60.00. This, however, is more than off-set by advertising which is due, and subscriptions also which are due the Journal. The issue of the Journal during the past year has been somewhat interfered with by local reasons in Baltimore. Our printing office has been burned out once, necessitating the resetting of a large portion of one number.



A second fire destroyed illustrations for another number and postponed its issue.

During the year the Editors have been confronted with a great excess of material, more especially in the form of scientific memoirs and papers of great value. To publish them it has been necessary to increase the size of the numbers very much beyond what has been deemed wise, and in several instances to publish papers in installments. The suggestion has been made that the Association should provide for the publication of one scientific memoir each year in the form of a by-volume or supplement to the Journal. During the past year three such papers have appeared in the Journal. One of them, that of Dr. Adolf Meyer, was a monograph of 68 pages; another, by Drs. Clark and Prout, will occupy about 74 pages. The paper of Dr. Folin has occupied 33 pages, and will require about as many more. I would urge that authority be given to the Board of Editors to provide for the publication of such monographs at a cost not to exceed a definite sum each year, this sum to be fixed by the Council annually, in accordance with the financial condition of the Association.

Very truly yours,

HENRY M. HURD, *Managing Editor.*

THE PRESIDENT.—If there is no objection, the report of the Editors of the AMERICAN JOURNAL OF INSANITY will be referred to the Auditing Committee elected this morning. The same disposition will be made of the report of the Treasurer which, owing to absence of those officers, could not be done yesterday.

Adjourned.

WEDNESDAY, JUNE 1, 1904.

The meeting was called to order by the President at 10 a. m.

The following papers were read:

"A Case of Sleep-Talking." D. R. Burrell, M. D., Canandaigua, N. Y.

"The Epileptic Child; its Treatment and Care." W. P. Spratling, M. D., Sonyea, N. Y. Read by title.

"Case of Malingery." Chas. G. Wagner, M. D., Binghamton, N. Y.

"The Need for Careful and Exhaustive Scientific Study of So-Called Mental Epilepsy." Dwight S. Moore, M. D., Jamestown, N. Dak. Read by title.

"The Mental Conditions Occurring in Cretinism." Edward E. Mayer, M. D., Pittsburg, Pa.

"Organic Dementia with Abstract of Fifty-Eight Cases." J. M. Keniston, M. D., Hartford, Conn. Read by title.

"Are the Insane Responsible for Criminal Acts." John Punton, M. D., Kansas City, Mo. Discussed by Drs. Geo. P. Sprague, H. A. Tomlinson, Richard Dewey, Chas. C. Wagner, A. E. Macdonald, Chas. H. Hughes, F. W. Langdon, and by Dr. Punton in closing

DR. LANGDON.—One thing impressed me in regard to this admirable paper on a subject which has not received the attention which it deserves and that is that we should take some action formulating the conclusions of this body on this important subject. I would suggest that a set of resolutions be framed so as to embody them and that they be brought before the legal profession. I would move the appointment of a Committee to frame them and I would also move that Dr. Punton be made Chairman of that Committee.

Motion adopted.

The following papers were read:

"Intra-Cranial Tumors in the Insane, with a Report of Two Cases." I. H. Neff, M. D., Pontiac, Mich. Read by title.

"Hydrotherapy." Geo. T. Tuttle, M. D., Waverley, Mass.

"A Remarkable Case of Degenerative Insanity of the Moral Type." Henry R. Stedman, Brookline, Mass.

Adjourned.

#### THURSDAY, JUNE 2, 1904.

The Association was called to order by President Macdonald at 10 a. m.

The Council reported that Dr. Henry M. Hurd had offered his resignation from the editorial staff of the *AMERICAN JOURNAL OF INSANITY*; that it had tendered him the position of advisory editor, and that he had accepted such position.

The President announced the appointments of Dr. Richard Dewey, Dr. Nelson H. Beemer, and Dr. J. C. Clark, as the Committee on Resolutions.

#### REPORT OF AUDITING COMMITTEE.

Dr. A. B. Howard for the Auditing Committee presented the following report:

The Auditing Committee would report that it has examined the books and vouchers of the Treasurer and of the Editors of the AMERICAN JOURNAL OF INSANITY and has found them correct.

A. B. HOWARD,  
A. F. KILBOURNE,

Auditors.

On motion the report was accepted and placed on file.

The following papers were read:

"A Case of Hysteria with Unusual Symptom Complex." (Loss of Identity, Reversed Writing, Homosexuality, Migraine, and Systematized Delusions.) Richard Dewey, M. D., Wauwatosa, Wis.

Dr. Dewey prefaced his paper by the following remarks:

The case which I am going to present to you this morning is one which is in an incomplete condition, the patient being still far from recovered but having features of a somewhat unusual character, I believed that it might be of interest to give some of the clinical facts of the case.

"The Mental Results of Abdomino-Pelvic Operations in Insane Women." W. P. Manton, M. D., Detroit, Mich. Read by title.

"Reconciliation of the Disparity between Hospital and Asylum Trained Nurses." C. P. Bancroft, M. D., Concord, N. H. Discussed by Drs. Tomlinson, Hughes, Kilbourne, and by Dr. Bancroft in closing.

"A Review of the Recoveries of the St. Lawrence State Hospital in the Year, 1894." R. H. Hutchings, M. D., Ogdensburg, N. Y. Read by title.

"A Few Remarks about Observation Hospitals and Wards." E. Stanley Abbot, M. D., Waverley, Mass. Read by Geo. T. Tuttle, M. D., Waverley, Mass.

"The German Psychiatric Clinics." E. N. Brush, M. D., Towson, Md. Read by title.

"Extension of Tent Treatment to Additional Classes of the Insane." C. Floyd Haviland, M. D., and Chester Lee Carlisle, M. D., Ward's Island, N. Y. Read by Wm. L. Russell, M. D., Inspector, for the Commission in Lunacy, Albany, N. Y. Discussed by Drs. C. B. Burr, J. C. Clark, the President and Dr. C. H. Hughes.

"A Plea for the Voluntary Admission of Certain Types of Insanity in Institutions for the Insane." James Russell, M. D. Hamilton, Ont. Read by title.

The Variations of the Psychic Equivalent." F. Savary Pearce, M. D., Philadelphia, Pa. Read by title.

"Suicide and Insanity." Gershom H. Hill, M. D., Des Moines, Ia. Read by title.

"Notes on Hallucinations." Wm. A. White, M. D., Washington, D. C. Read by title.

"Review of Some of the Recent Blood Stains with Demonstrations." (Demonstration by tests and microscopic slides.) Geo. C. Crandall, M. D., St. Louis, Mo. Discussed by Drs. C. H. Hughes and C. B. Burr.

"Amnesia Clinically and Diagnostically Considered." Chas. H. Hughes, M. D., St. Louis, Mo.

"Characteristics of the Scotch Lunacy System." Owen Copp, M. D., Boston, Mass. Read by title.

FRIDAY, JUNE 3, 1904.

The meeting was called to order by the President at 10 a. m.

THE PRESIDENT.—I call for the Report of the Council as to time and place of next meeting.

THE SECRETARY.—The Council has to report that it has selected San Antonio, Texas, as the place of the next meeting, the time to be between the 15th of April and the first of June. The Committee of Arrangements consisting of Dr. Jno. S. Turner, Dr. B. M. Worsham, and Dr. M. L. Graves, is to decide upon the exact time.

THE PRESIDENT.—Dr. Edwards, who was chosen as delegate to the meeting of the British Medico-Psychological Association last year, will please make his report.

DR. EDWARDS.—Through the great courtesy of this Association I was sent as delegate to the British Medico-Psychological Association at its meeting in London last year. I arrived in London in due time, as I expected, a week before the meeting. However, I found that the officers of the British Medico-Psychological Association exercise the same prerogatives that those of this Association do, namely that the Secretary changes the time of meeting.

This had been done so that the meeting closed upon the day of my arrival in London. I visited Dr. Jones at Claybury and I bear his greetings to our President and the members of this Association. I visited a number of institutions in England and Scotland and from their superintendents bring the very best wishes for the success of this meeting.

On motion the report was accepted and placed on file.

THE PRESIDENT.—I call for the report of the Committee on Resolutions.

DR. DEWEY.—Mr. President, members of the Association. Your Committee on Resolutions desire to express their appreciation of the comfortable and convenient arrangements for our sessions and the hospitality shown so far as opportunity was possible in view of the paramount attractions of the World's Fair.

RICHARD DEWEY,  
N. H. BEEMER,  
J. C. CLARK.

The report was accepted and adopted.

DR. BURR.—I would move that Dr. Jas. Russel of Hamilton, Ont., be elected a delegate to represent the Association this year at the meeting of the British Medico-Psychological Association.

The motion prevailed.

DR. PUNTON.—In regard to the Committee so kindly suggested by Dr. Langdon to prepare resolutions on the substance of my paper, I would be very glad to be relieved of the chairmanship of that Committee with your consent.

THE PRESIDENT.—You have heard the request of Dr. Punton to be relieved from the chairmanship of this committee. A motion is in order that the matter be reconsidered in accordance with his request.

DR. BURR.—I move that the resolutions of yesterday be reconsidered, and that Dr. Punton's request be complied with.

Motion carried.

DR. BURR.—I move that the appointment of this Committee be left with the President.

Motion carried.

THE PRESIDENT.—I understand that this is left with the incoming President.

DR. COE.—I wish to say, as most of you know, that Portland, Oregon, was an applicant for the next meeting place of the American Medico-Psychological Association but that we are glad that it is going to San Antonio. I wish to thank you for the kind word which many of you have spoken to me regarding Portland and to say that so long as you are going so far west, you might as well get your tickets through to Portland and I shall be glad to entertain you personally. We will show you a great country, with great forests, and mountains and rivers, and scenery that is unsurpassed. We will have also the Lewis and Clark Exposition which while it will not compare with the Louisiana Purchase Exposition will be a notable event and worth seeing. I assure you that I shall be glad to see you there and will do what I can for you if you will let me. (Applause.)

THE PRESIDENT.—The Association thanks Dr. Coe for his invitation.

DR. GRAVES.—I wish to thank the Association for the selection of San Antonio as the next meeting place and I desire to say to you that we will do everything in our power to make your stay there pleasant.

Memorial notices were then read by title as follows:

Geo. W. Foster, M. D., by I. W. Blackburn, M. D.

A. B. Richardson, M. D., by Henry A. Tobey, M. D.

Orpheus Everts, M. D., by F. W. Langdon, M. D.

John B. Murphy, M. D., by R. W. Bruce Smith, M. D.

Edward C. Runge, M. D., by Frank R. Fry, M. D.

Eli E. Josselyn, M. D., by E. N. Brush, M. D.

THE PRESIDENT.—Nothing remains for me now other than to vacate my office. I appoint Dr. Tuttle and Dr. Mead to conduct Dr. Burgess to the Chair.

PRESIDENT MACDONALD.—Members of the Association: It gives me very great pleasure to introduce to you my successor and your President for the coming year. Dr. Burgess, I wish you in your new office happiness and success, which I also predict, and I no less predict satisfaction and pleasure to this Association under your Presidency.

DR. BURGESS.—I am indebted to you for the greatness thrust upon me. I only wish that I were more worthy of it and that I could find words to express the gratitude I feel for the honor the

Association has conferred upon me. I cannot hope to equal my predecessors all of whom have been men whose names are well known in psychiatry, but I promise that I will do my best in fulfilling the duties to the satisfaction of the Association, and in making the San Antonio meeting as successful as those in the past. I thank you indeed most heartily for the honor you have conferred upon me.

PRESIDENT MACDONALD.—I ask the Association's indulgence for a violation of the rules in returning to the office of President for a moment and beg to upset another precedent which has, so the retiring Secretary tells me, been followed for a great many years. He tells me that it is not proper to introduce the Vice-President but I am going to do so in spite of his protest. Dr. Burr needs no introduction. He has as Secretary found his way to the desk so often that we began to wonder if he could ever find his way away from it. He needs nobody to conduct him. Will Dr. Burr please come to the platform?

DR. BURR.—I appreciate this honor very much. I have enjoyed the work of Secretary which you have placed upon me for several years and retire from the office with some regret. It would be with unmixed regret except for the fact that after routine has been carried on for years, things begin to grind a little, and to grow a wee bit irksome. I have enjoyed the work in the main and have attempted to carry it on in a way which would merit your approval. I retire from the office gratefully appreciative of the confidence which you have placed in me for so many years and shall seek to serve you well in the honorable office to which you have elected me. I shall hope to see you all the next year, shall hope that there will be a large attendance at San Antonio. The members from Texas have expressed a great desire for us to go there and extend to us the old time Southern hospitality. I hope every member will strain a point to go. I thank you heartily for this new expression of your confidence. (Applause.)

DR. PILGRIM.—Before adjournment, I move that a vote of thanks be extended to Dr. Macdonald for the very able manner in which he has conducted this meeting.

DR. BURGESS.—You have heard the motion to thank the retiring, President, Dr. Macdonald. Thanks are especially due him in



view of the fact that suffering from ill health he has come here and contributed his large part to this successful meeting.

Carried unanimously.

DR. BURGESS.—On behalf of the Association, I extend to you with much pleasure this vote of thanks.

Gentlemen.—There being no further business to come before this Association to-day, I declare the meeting adjourned until we gather together at San Antonio. I only hope, as Dr. Burr has said that there will be a large meeting there. I am sure you will be heartily welcomed. You have heard of a Virginia welcome, and I am sure that you will find a Texas welcome equal to it at the coming meeting and if we go there, we will have a very, very good time. The meeting now stands adjourned.

E. C. DENT, *Secretary*.

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ASSOCIATION OF ASSISTANT PHYSICIANS OF THE OHIO STATE  
HOSPITALS.

*Proceedings of the Third Meeting.*

The third meeting of the Association of Assistant Physicians of the Ohio State Hospitals was held on April 6 and 7 in the Pathological Laboratory of the Ohio Hospital for Epileptics at Gallipolis, Ohio.

AFTERNOON SESSION, APRIL 6.

President's annual address, Dr. G. T. Harding, Jr., Columbus. Subject: "The Reasons for the Existence of the Association of Assistant Physicians, and Its Policy." In his address Dr. Harding took occasion to protest strongly against a niggardly economy to the detriment of the best medical work in these institutions. Discussion by Gen. Roeliff Brinkerhoff and Mr. Shirer, of the Ohio Board of State Charities, guests of the Association, and by Drs. W. H. Pritchard, N. H. Young and G. T. Harding, Jr.

Dr. J. O'Brien discussed two cases of pre-senile delusional insanity observed by him at the Massillon State Hospital and at the McLean Hospital.

Dr. Ralph W. Holmes, Gallipolis, presented the specimens

from a case of epilepsy following scarlet fever, in which the accessory sinuses on the left side were found at autopsy enormously enlarged and the left half of the cerebrum was destroyed in large part. Here the aphasia following the disease gradually subsided and speech was regained while the patient became left-handed.

Dr. E. B. Morrison, Gallipolis, exhibited an epileptic patient with facial hemiatrophy.

Dr. Wm. H. Pritchard, Gallipolis, gave the clinical history and presented the pathological specimens from a case of paradoxical embolism due to a persistent foramen ovale.

Dr. Walter H. Buhlig, Gallipolis, presented an epileptic with astasia-abasia.

Dr. Arthur G. Helmick, Gallipolis, read the clinical history and showed the specimens from an epileptic who died from measles and laryngeal diphtheria.

Paper, "The Surgical Treatment of the Insane," by Dr. George R. Love, Toledo, read by title.

Dr. Paul W. Tappan, Dayton, read a paper entitled "Entertainment and Amusement for the Insane." Discussion by Drs. N. H. Young, R. W. Holmes, E. E. Gaver, G. T. Harding, Jr., and Tappan.

#### EVENING SESSION, APRIL 6.

Dr. Earl E. Gaver, Columbus, read a paper entitled "Changes Needed in the Ohio Lunacy Laws." Discussion by Dr. R. W. Holmes, Mr. Shirer, Drs. Morrison, Young and Gaver.

Dr. F. D. Ferneau, Toledo, read a paper on "Tuberculosis in the Insane." Inasmuch as this is a paper now being debated by the medical profession and the legislative bodies of Ohio, and as it concerns directly the treatment of the tuberculous patients in the various State hospitals, it was freely and intelligently discussed by the members of the Association.

#### MORNING SESSION, APRIL 7.

Dr. Edson C. Brown, Massillon, read a paper entitled "Paranoia." Discussion by Drs. Tappan, Bradley and Brown.

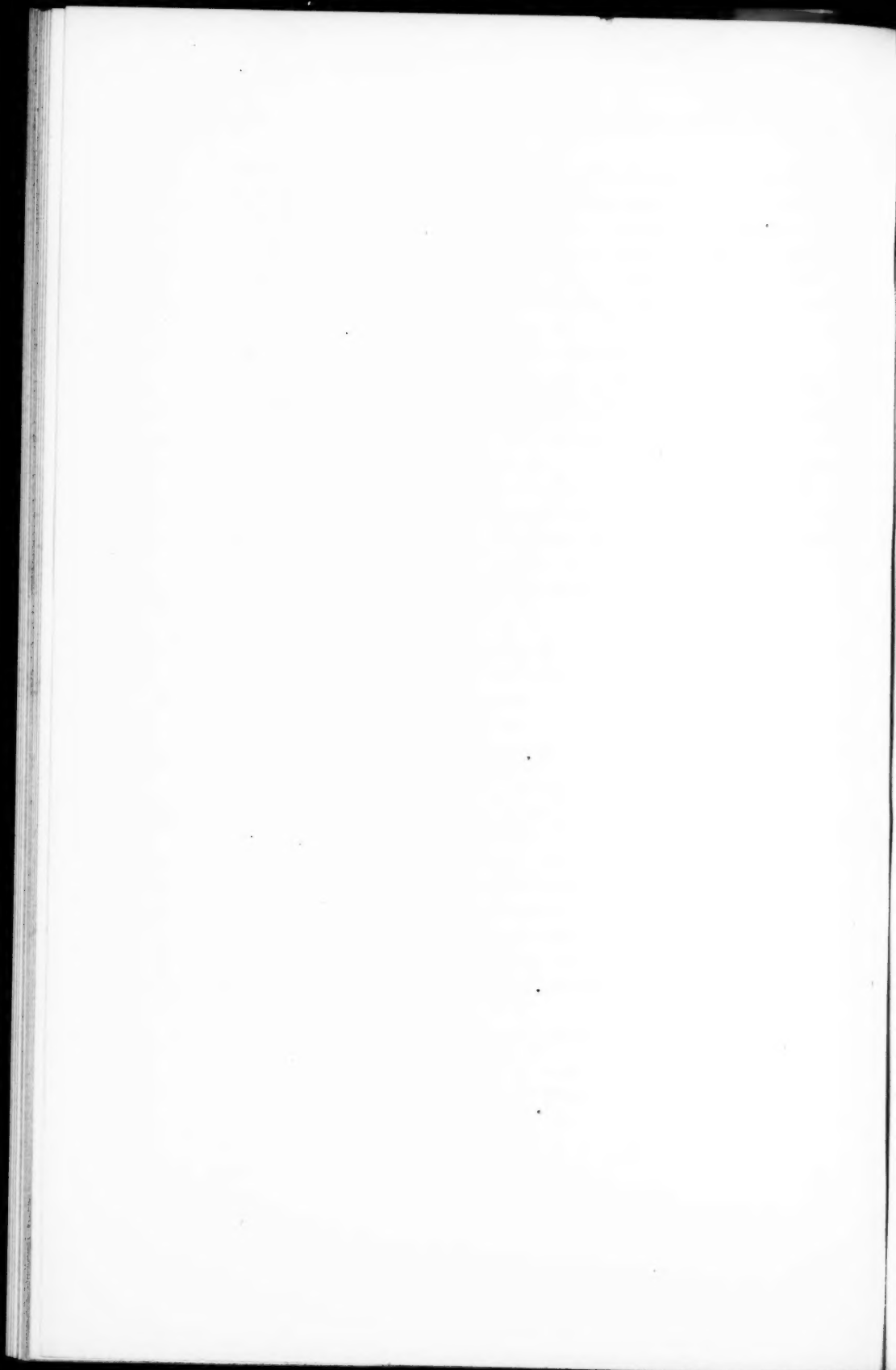
Dr. A. P. Ohlmacher, Gallipolis, presented and discussed the pathological specimens in "A Case of Aquatic Sudden Death of Status Lymphaticus in an Epileptic."

Following the completion of the program, the business of the Association was transacted. After reports of committees had been heard, the Association proceeded to the election of officers, which resulted as follows: President, Dr. Wm. H. Pritchard, Gallipolis; Vice-President, Dr. Paul W. Tappan, Dayton; Secretary, Dr. Walter H. Buhlig, Gallipolis; Treasurer, Dr. F. D. Ferneau, Toledo.

As a result of the discussion of Dr. Gaver's paper on needed reforms in Ohio's lunacy laws, the legislative committee was charged with making a study of these laws in order to bring up for consideration at a future meeting such changes as seemed needed.

Dr. Ralph W. Holmes, Gallipolis, Dr. James F. Kelley, Cleveland, and Dr. Mylo Wilson, Athens, were appointed by the President to represent the interests of the Association at the meeting of the Ohio State Medical Association to be held at Cleveland.

WALTER H. BUHLIG, *Secretary*.



## Obituary

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Dr. John B. Murphy, the Medical Superintendent of the Brockville Asylum at Brockville, Ontario, died very suddenly of heart disease at his residence, January 17, 1904. He was returning from church when stricken with disease and lived but a few minutes.

The late John Bernard Murphy was born in the township of Asphodel in the county of Peterborough on the 31st of March, 1850. His father was a native of Ireland, and was a man of splendid physique and exceptional integrity, honored and respected by all his acquaintances. The subject of this obituary notice attended the public school in his own township, and afterwards the old Norwood Grammar School, one of the best institutions of its kind in the district. He subsequently attended St. Michael's College, in Toronto, and while there he had the opportunity of becoming acquainted with some of Canada's future distinguished citizens, whose friendship and affection he retained until his death. After graduating there, he returned home and for the next few years he taught school with marked success. In 1872 he began the study of medicine at Queen's University, Kingston, graduating in 1876. He began the practice of medicine in Belleville, and in 1881 was appointed physician to the Deaf and Dumb Institute, at the same time retaining his general practice. He was a most successful practitioner, and had a large consulting practice throughout the district in which he resided, and even to this day he is not forgotten there. His professional skill, kindly sympathy, and unfailing courtesy endeared him to the afflicted who applied to him for assistance, and his departure from Belleville was sincerely regretted by everyone who knew him. In 1890 he was appointed Medical Superintendent of the Asylum for the Insane at Mimico, near Toronto. The writer happened to be in his office in Belleville a short time before his

departure to assume his new duties, and had an opportunity of seeing many of his old patients call to bid him good-bye with the most marked external manifestations of the great grief experienced at the loss of so warm a personal friend.

While at Mimico, Dr. Murphy labored zealously and successfully on behalf of the people placed under his care. The grounds were improved and everything was placed in good running order, when, in 1894, he was asked to assume similar duties in the new asylum at Brockville, which was just completed. While many a man might have hesitated to accept this new and difficult position, Dr. Murphy, whatever he may have felt, made no complaint. His appointment, however, was perhaps the greatest compliment that could have been paid to him. It was an eloquent testimony of the confidence reposed in him by the government of the province.

In his new position Dr. Murphy labored as zealously as ever. New buildings were added from year to year, grounds were improved, roads and walks constructed, until at the time of his death he was in charge of one of the best equipped and most successfully managed institutions in the province.

Dr. Murphy was in the zenith of his manhood, and while he has left behind him a public record of which any man might well be proud, yet his friends, those who knew him best, will remember him most for his qualities of head and heart. He was a warm-hearted, honest man, sincere in his friendship, generous in his judgments, and always straightforward in his dealings. He was faithful, modest and kind-hearted, and zealously devoted to the welfare of the unfortunates committed to his care. He cared nothing for the applause of the public, nor could public criticism deter him from doing what he believed to be right.

His domestic relations were of the happiest nature, and a devoted, affectionate and helpful wife and a family of six children now mourns the loss of a loving husband and father.

"The battle of life is brief,  
The alarm, the struggle, the relief,  
Then sleep we side by side."

T. J. MOHER.

## Notes and Comment

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THE ST. LOUIS MEETING.—This year St. Louis seems to be the Mecca of medical associations. Among those braving the discomforts of crowded hotels and variable weather, the American Medico-Psychological Association met in the city of the Louisiana Purchase Exposition, May 30th to June 3rd. The meeting was excellent in point of papers read and better than was hoped as to attendance, but notwithstanding the favorable arrangements of the local committee to have morning sessions only, thus permitting members to enjoy the Exposition during afternoons and evenings, the environment was such as to interfere with the continuity of the work, and especially with the thorough discussion of papers. One was vividly reminded of a similar experience during the time of the World's Fair when the Association met in Chicago in 1893. The absence of several of the older members and wheel-horses of the Association who were deterred from coming because they could not visit St. Louis at this meeting and again in September at the time of the Medical Congress was noticed and regretted.

No less than fourteen papers were read by title somewhat to the impairment of the program. In every instance there seemed to have been good and valid reason for the non-attendance of the author, but the fact remains that lack of attendance on the part of those who have promised papers strongly tends to throw the work of any association out of joint.

Notwithstanding these handicaps, however, the meeting was successful and stimulating. Dr. Macdonald showed himself a masterful, resourceful, and conscientious presiding officer and kept things actively moving. Coming from a sick bed to preside and carrying the work by sheer fortitude and will in the face of the ineptitude which illness brings, merited and received unstinted praise. Dr. Dent, the newly elected secretary, assumed the position gracefully and easily and took up its duties with a



characteristic fidelity which gives promise of a healthy growth of the Association and an excellent program for next year.

As an outgrowth of the discussion of Dr. Punton's paper, "Are the Insane Responsible for Criminal Acts," a Committee was appointed to frame the conclusions of the Association on the subject in a set of resolutions that may eventually be brought to the attention of the legal profession.

The annual address of Dr. Chas. G. Chaddock was a scholarly production and showed deep reading and research. It is very much to be regretted that its publication may be delayed owing to the failure of the express company to deliver a package containing this and a number of other manuscripts and some of the books and records of the Association which was shipped late in June but had not been received by Dr. Dent up to the middle of July. Authors of papers must possess their souls with patience. It seems impossible under the circumstances of the shipment, that such a package should much longer remain undelivered.

The Association received urgent invitations to meet at Providence, R. I., Portland, Ore., and San Antonio, Tex. The special claim advanced for San Antonio was that the Association had never met so far south and that its presence was needed as an incentive and inspiration to that section of the United States. The Council decided upon San Antonio for the 1905 meeting and has left the date to be settled upon by the local Committee.

B.

PSYCHIATRY IN THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCES AT ST. LOUIS.—The announcement is made that the Section in Psychiatry of the Congress will be presided over by Dr. Edward Cowles of Boston. The formal addresses in addition to that of Dr. Cowles will be delivered by Prof. Th. Ziehen of Berlin and Dr. Charles L. Dana of New York. The names of those who are to give the shorter addresses have not yet been announced. The idea of the Congress grew out of the conviction that the subdivisions and multiplication of specialties in science had reached a stage at which investigators and scholars might derive inspiration and profit from a general survey of the various fields of learning, planned with a view of bringing the scattered sciences into closer mutual relations. An assemblage is conse-

quently to be convened at which leading representatives of theoretical and applied sciences are to set forth the general principles and fundamental conceptions which connect groups of sciences, to show their mutual relations and to discuss their present problems. The speakers to treat the various themes have been selected in advance from Europe and America. The sessions have been arranged on the following general plan:

After the opening of the Congress on Monday afternoon, September 19, addresses on the seven main divisions of science will follow on Tuesday forenoon, with the intention of unifying as far as practicable these divisions. These are to be followed by two addresses relating to each one of the twenty-four great departments of knowledge. One address in each case will treat of fundamental conceptions and methods, and the second will set forth the progress which has been made during the nineteenth century. These and the preceding addresses will be given by American scholars.

Upon the third day with the opening of the sections the international character of the Congress will be apparent. About 128 sectional meetings will be held on the four succeeding days of the Congress, at each of which two papers will be read, the first relating to the connections of the special branch to other branches and the second to its present problems. The addresses in each department are to be collected and published in a special volume.

DR. T. J. W. BURGESS.—The recently elected president of the American Medico-Psychological Association, Dr. Thomas Joseph Workman Burgess, the second son of the late Thomas Burgess, a native of Carlisle, Cumberland, England, was born in Toronto, Ontario, March 11, 1849. He was educated at Upper Canada College, where he gained a scholarship and numerous prizes in a variety of subjects. Matriculating in medicine at the University of Toronto in 1866, he graduated therefrom in 1870, carrying off the Starr gold medal and first University silver medal.

Commencing professional work, he was associated with the Toronto Asylum as clinical assistant under his godfather, the late venerable Dr. Joseph Workman, then superintendent of that institution.

In 1872 he was attached to the Royal Engineers and appointed surgeon to the Royal Commission for the demarcation of the

international boundary line between Canada and the United States from the Lake of the Woods to the Rocky Mountains, and at the close of the work received the thanks of her Majesty's government for the able manner in which he had carried out the arduous duties entrusted to him.

Returning to Toronto, he resumed his special work in connection with mental disease, and in 1875 became assistant physician, then assistant superintendent, of the London Asylum, serving as such under the late Drs. Henry Landor and R. M. Bucke. In 1887, he was transferred to the Hamilton Asylum, where he remained until 1890, when the governors of the then newly erected Protestant Hospital for the Insane at Verdun near Montreal unanimously selected him, from a large number of applicants, as its first medical superintendent, which appointment was confirmed by the Provincial government.

In 1893, Dr. Burgess was appointed lecturer on, and in 1889 professor of, Mental Diseases at McGill University. He is a fellow of the Royal Society of Canada, serving as president of the Biological Section thereof in 1898, and is also a fellow of the American Association for the Advancement of Science.

Dr. Burgess has gained considerable repute as a botanist and contributed several valuable papers on the subject to the technical press. Of late years, however, his attention has been given almost exclusively to psychology.

The readers of the *AMERICAN JOURNAL OF INSANITY* will remember the excellent account of the Canadian institutions for the insane which appeared in its pages in 1898 from the pen of Dr. Burgess. It is to be regretted that he has not written more frequently. Dr. Burgess is a man of varied culture and of broad scientific requirements. He is also an excellent organizer and a very efficient medical officer.

His work at Verdun has been accomplished under many disadvantages and discouragements, but its success has been far beyond what even his most sanguine friends anticipated. His selection to be president of the American Medico-Psychological Association is a well deserved tribute to his worth.

## Abstracts and Extracts

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*Étude sur le Mélancholie.* Par SOUKHANOFF et GANNOUCHKINE. Annales Médico-Psychologiques, LXI, p. 209, September-October 1903.

The authors have studied 278 cases (102 men, 176 women) in the Psychiatric Clinic of Moscow. They disagree with Kraepelin, who limits the term melancholia to the regressive period of life, and discuss the question of recurrence at some length. They state that all the acute psychoses, whatever their clinical form, have a marked tendency to recur, and further, in any acute psychosis, and especially in melancholia, it is impossible to state positively that the disease will not recur. Melancholia occurs more frequently in women than in men, 12 per cent in women, 3.4 per cent in men. Heredity is less important as an etiological factor in women than in men.

The conclusions to this study are:

1. Melancholia, like all acute psychoses, may recur after long or short intervals.

2. There is not sufficient evidence to consider periodic melancholia as a morbid entity, because this form coincides with recurrent melancholia with frequent attacks.

3. In certain cases of recurrent melancholia, intellectual weakness or even dementia, may occur after an attack, but this does not exclude the diagnosis of recurrent melancholia and indicates the possibility of transitional cases between dementia præcox and the recurrent psychoses.

4. When in certain cases melancholia develops on a constitutional basis (hysteric, alcoholic, morbid obsessions, eccentric), it is apt to partake of the characteristics of this constitutional basis.

5. The state of melancholia appearing as a phase of a circular insanity should not be considered as an acute psychosis, as circular insanity is due to entirely different causes than acute recurrent psychoses.

W. R. D.

*Fréquence et évolution des lésions du fond de l'oeil dans la paralysie générale. Étude clinique et anatomo-pathologique.* Jar. M. M. P. RAVIART et P. CAUDRON. Journal de Neurologie, An. 9, p. 54, February 5, 1904.

This paper is complementary to previous publications by the authors themselves and with M. Keraval (see this JOURNAL, Vol. 59, p. 693). Twenty-three cases of the first series reported have been examined and in a general way the ocular changes have developed parallel with the brain

lesions. Exceptions were seen in two patients who had become blind before reaching the third stage. The second series consisted of 44 patients of whom 38 showed some change in the fundus. These were bilateral white atrophy of the papilla in one; bleaching of both papillæ in ten, bleaching of the right papilla in two, the left eye being normal in one, while the left papilla of the other showed paleness of the nasal segment; in four cases the papilla was grayish-white; the papillæ of five others were pale, the vessels tortuous, one patient showed a pale right papilla while the left was normal; eleven cases showed a paleness of both papillæ, the right alone being affected in four others, and the left alone in one other.

Five cases came to autopsy. The retina showed proliferation of neuroglia, connective tissue and the radiating fibers. In advanced cases the ganglion cells had disappeared. A serious retinitis sometimes accompanied the diffuse retinitis, and the cystic degeneration described by Iwanoff was also observed. The papilla showed infiltration with neuroglia and connective tissue, varying with the degree of the lesion and atrophy. The optic nerve showed similar lesions.

W. R. D.

*De la réaction pupillaire prolongée aux toxiques comme signe précoce de la paralysie générale.* By M. M. ED. TOULOUSE et CL. VURPAS. Journal de Neurologie, An. 9, p. 52, February 5, 1904.

The authors have studied the action of eserine and atropine on the iris to see if it did not furnish an early sign for the diagnosis of beginning paresis. They have noted *the latent period* during which there was no reaction; *the period of reaction* in which the dilation from atropine or contraction from eserine attained the maximum; the *total length of the reaction*, or the entire time of modification of the pupil. One drop of the solution was placed in one eye, the other being used for comparison, and the patients were observed from hour to hour. The length of the reaction is always longer in paretics in a ratio of about 3 to 1. The authors believe that this prolonged time is due to alterations of the higher nerve centers of the cerebral cortex and that it constitutes a valuable early diagnostic sign.

W. R. D.

*On the Action of the Blood Serum from Cases of Acute Mental Disorder on B. Coli Communis.* By ALICE V. JOHNSON and EDWIN GOODALL. (British Medical Journal, No. 2258, p. 826, April 9, 1904.)

A preliminary communication on this work was made at the last meeting of the British Medical Association. Further experiments have been made, and the following conclusions are drawn:

1. In 50 per cent of the total cases of acute insanity agglutination was present, in contrast to the control experiments, where only 15.5 per cent of the cases presented this phenomenon.

2. Such agglutination was partial in the great majority of the cases (39 per cent).

3. In those forms of the disease in which the cases were sufficiently numerous to permit of percentages being taken (mania and melancholia), a preponderance of partial over good agglutination was also obvious.

4. The percentage of agglutination (good and partial) was greater (58.5 per cent) in the cases of melancholia than in those of mania (45.2 per cent).

5. The percentage of good agglutination was greater in melancholia than in mania.

6. Even when the disease is quite recent in duration there is as often as not a failure to agglutinate.

*Epilepsie, Pathogénie et indications thérapeutiques (Contribution a l'étude de la Physiologie du corps thyroïde).* DR. ALEX. PARIS, Arch. Neurol. Vol. XVII, p. 97, and 206, Février et Mars, 1904.

In the treatment of epilepsy the end to be attained is to first diminish the cerebro-spinal excitability; secondly, to moderate the functional activity of the thyroid gland more especially, and also that of the genital glands; thirdly to assure the regular elimination of their secretions and prevent their retention in the organism; fourthly, to prevent all the complementary causes of cerebro-spinal excitement, the development or accidental accumulation of toxines, etc.

W. R. D.

*Motor Symptoms of Mania and Melancholia; with a Theory of their Origin and of the Origin of Delusions arising in these Conditions.* By W. H. B. STODDART, M. D. The Lancet, No. 4201, Vol. I of 1904, March 5.

Some years ago the author drew attention to the fact that melancholiacs suffer from paralysis and rigidity of the muscles of the spinal column and of the large proximal joints the movements of the wrists, fingers, ankles, and toes being relatively unimpaired. In the lesser degrees of melancholia slight paralysis has to be inferred from the patient's slowness of movement and from his inability to occupy himself in any way. It is only in the severest cases that there are obvious well-marked paralysis and rigidity, but these are the cases which should be studied first. The rigidity is more easily investigated than the paralysis. Rigidity is most marked in the muscles of the trunk and neck, less marked but strikingly present in the shoulders and hips, less marked at the elbows than at the shoulders, less marked at the wrists than at the elbows and usually absent from the fingers. Similarly, rigidity is less marked at the knees than at the hips, is very slight at the ankles, and usually absent from the toes. The rigidity affects flexors more than extensors and adductors more than abductors; hence the attitude of the melancholiac is one of general flexion and adduction, the shoulders being raised owing to the rigid contraction of the upper part of the trapezius. The author calls the condition proximal rigidity in contradistinction to peripheral rigidity such as occurs in hemiplegia where the fingers and wrists are most affected.

In making observations on the above points voluntary resistance or assistance must be discounted. This usually disappears after three or four movements, and is most easily studied where it is most intense, that is



in the large proximal joints. In a severe case the patient cannot raise the elbows above the shoulders when asked to hold the hands straight above the head. The patient stands because the rigidity of the hips renders sitting uncomfortable. The fingers are in constant motion, or the agitation shows itself in grosser movements.

On the other hand, the movements of a maniac in a state of motor excitement take place for the most part at the large proximal joints. The trunk sways freely as the patient walks and when she runs there is exaggerated movement at the hips, whereas in the running of a sane woman there is little movement of the hips. The maniac shakes hands from the shoulder, the melancholiac from the wrist. In many severe cases of mania there are peripheral as well as proximal movements. After further discussion the author concludes that: (1) In mania an irritating product is formed within the cortical neurons—such a view is further supported by the frequency of hallucinations in mania; (2) In melancholia a paralysing product is formed within the cortical neurons; (3) In agitated melancholia there is a combination of deleterious influences—viz., a paralysing product within the cortical neurons and also an irritating body in the plasma which bathes the nerve cells; (4) In a few cases of mania there is in addition to the irritating body within the nerve cell an irritating body in the plasma which bathes the nerve cell.

The author then discusses the origin of delusions and endeavors to show that most of the delusions of the melancholiac arise from his feeling of inactivity, while the delusions of exaltation arise from the feeling of activity which results from the stimulation of his cortical neurons.

*The After-Effects of Head Injuries.* Abstract of the Hunterian Lectures.

By T. CRISP ENGLISH. The Lancet, Nos. 4199, 4200, 4201, Vol. I of 1904, Feb. 20, 27, March 5.

The conclusions are as follows:

1. Whilst some degree of mental impairment is comparatively common after injuries to the head the changes are seldom sufficiently marked to be regarded as forms of insanity.

2. Insanity may result from injury to any part of the head.

3. Traumatism leads to insanity in two ways: (1) Direct insanity due to the actual injury to the brain or to its membranes apart from hereditary or other predisposing causes; and (2) Indirect insanity—that is to say, any form of insanity occurring as the result of lowered resistance of the brain due to injury in patients with a predisposition to insanity, hereditary or otherwise.

4. Every variety of mental change may be produced by traumatism, although some forms are commoner than others.

5. It is at present undetermined whether injury to the prefrontal region is more likely to be followed by mental disturbances than injury to other parts of the brain.

6. Only a small proportion of the cases of traumatic insanity are open



to relief by operation; for a localizing indication in an accessible region must be present.

7. The results so far have been encouraging and although the operation must necessarily be exploratory it is fully justifiable in suitable cases, especially in face of the otherwise hopeless condition of these patients.

W. R. D.

*Considérations Générales sur la signification clinique de la Démence Précoce.* Par DR. F. MEEUS. *Annals de la Société de Médecine de Gand.* Vol. LXXXIII, p. 17.

After reviewing the opinions of other writers, and detailing several illustrative cases, Meeus comes to the conclusion that, after examining a number of hebephrenic and catatonic patients and carefully observing the individual changes, one may go progressively by intermediate degrees from cases without emotional bases, or hebephrenics, to two varieties of the catatonic form, and in the catatonic form itself from the case of stupor to the case of excitement. Reduced to a minimum in the hebephrenic, negativism and motor symptoms increase progressively and supply two principle forms, one stuporous, characterized by negativism, the other excited, characterised by diminished sensation. One may say that the hebephrenic and catatonic forms of Kraepelin are in one case a slight manifestation, and in the other a severe manifestation of the same disease. Meeus concludes by reiterating his belief that the term dementia hebephreno-catatonica is a better name than dementia praecox, as he has before stated in a paper in the *Journal de Neurologie* (Nov., 1903).

W. R. D.

*L'état du fond de l'oeil chez les paralytiques généraux.* Par P. KERAVAL and A. DANJEAN. *Archives de Neurologie*, Vol. XVII, p. 193. Mars, 1904.

This article is complementary to two papers published previously. (See *Archives de Neurologie*, Vol. XV, p. 1, and Vol. XVI, pp. 354, 420.) The conclusions are as follows: (1) In 41 female paretics 13 showed normal papillae. (2) In 21 cases the papillary lesions were similar to those noted in the previous papers. (3) Eliminating 7 cases where there was some doubt whether the lesions found were dependent upon the paresis, there remained 38 per cent of the patients in whom the fundus was normal and 61 per cent showing lesions of the fundus.

W. R. D.

*The Early Diagnosis of General Paresis.* By WILLIAM A. WHITE, M. D. *Medical News*, Vol. 84, p. 679, April 9, 1904.

White believes that if we have a patient in middle life with Argyll-Robertson pupils and abolished knee jerks, and can eliminate tabes, we may strongly suspect paresis. If in addition there is a great change in the character of the individual, with irritability, restlessness, and a host of minor mental symptoms which individually mean nothing, but in their

ensemble speak for mental deterioration, we need not hesitate to be convinced. Loss of the consensual light reflex and speech defects, transient palsies, paretic seizures and optic nerve atrophy are also important early symptoms.

The differential diagnosis from tabes is not easy, but in a case suggestive of tabes with slightly atypical symptoms and an associated dementia, a tentative diagnosis may be made.

In the differentiation from neurasthenia the general mental attitude is important. The neurasthenic complains of all his pains, whereas a paretic is indifferent or believes he is in good health. In neurasthenia there is also no dementia, no disturbance of speech or writing, and none of the above symptoms noted as being present in paresis.

Sometimes the differentiation from chronic alcoholism is difficult, but the history and absence of physical signs are important. Brain tumor may cause symptoms indicative of paresis, but the focal character of the physical signs is the most important differential point.

Disseminated sclerosis is differentiated from paresis by the combination of intention tremor, scanning speech, nystagmus, and spasticity. From cerebral syphilis the diagnosis may be made on the focal character of the defects of speech and writing, if they are present, the permanent palsies and the nocturnal headaches.

W. R. D.

## Book Reviews

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*Bibliographie der gesamten wissenschaftlichen Literatur über den Alkohol und den Alkoholismus.* Edited by Dr. med. A. Abderhalden. (Urban & Schwarzenberg, 1904.)

In the work before us we find on some five hundred pages a careful collection of references to the literature on alcohol and alcoholism. About sixty collaborators in various countries have joined the editor, and the Academy of Sciences in Berlin has materially aided the undertaking. The book does, of course, not contain the titles of all papers which have been written on alcohol, but aims to contain all that are of any definite scientific value. Since this aim has evidently been achieved, and since the titles are extremely well arranged, we have here a bibliography of great value. It need scarcely be stated that there are a great many references in this work which are of especial interest to the neurologist and psychiatrist.

The titles are divided into two groups, namely, a medical and a sociological. The medical part comprises pp. 1-379, the sociological, pp. 380 to 504. In the former we find subdivisions on the chemistry of alcohol (1-72), the physiological and toxicological actions of alcohol (73-108), the therapeutic actions of alcohol (109-135). The most important portions, to the readers of this journal, are to be found under the headings of the pathological action and the psychic action of alcohol. Under the former (pp. 136 to 235) we find the references to the literature of the action of alcohol on various organs and mechanisms, on the course of various diseases and intoxications, its influence upon age, morbidity and mortality, its relation to heredity and degeneracy, and its action upon the infantile organism. We find, of course, a special subdivision on the action of alcohol upon the nervous system. This portion contains from 300 to 400 references and is subdivided respectively into the pathological anatomy and the pathology of the central and of the peripheral nervous system.

Under the heading of psychic actions of alcohol we find first the references to works on the psychology, namely, the literature of the experimental psychological work done in regard to alcohol, then a chapter on psychopathology. Here we find (1) the influence of alcohol on psychoses, (2) alcoholic psychoses. The latter division contains about 20 pages of references and takes up the subject in a very exhaustive manner. In a special chapter of 48 pages we find the subjects of intolerance to alcohol, and the relation of alcohol to crime, suicide and accident.

The sociological part deals with the general subject of alcoholism, its

causes, its social consequences, its distribution in various countries, and the different means of combating alcoholism which have been adopted in various countries.

So thorough a bibliography is of inestimable value to anyone who wishes to make a study of the subject, and it may well serve as an example to be followed in other branches of science.

A. HOCH.

*The Worth of Words.* By DR. RALCY HUSTED BELL, with an Introduction by DR. WILLIAM COLBY COOPER. Third edition. (New York, Hinds & Noble.)

The introduction to this little volume contains the statement that it is called into being because it is "greatly and urgently needed." There can be no doubt that there is general and urgent need of works which may influence the common use of words in the direction of correctness and good taste, but a slight note of pretension seems to lurk in the implied claim that this little book is in itself equal to the missionary work involved in such an undertaking. The author's purpose, as announced by himself, however, is reasonable and appropriate, namely, the intention of putting into ready form some helpful gleanings from reputable authorities on the true worth of words.

The chapter treating of the distinction between good and bad words is one of general interest; but that devoted to vulgarisms is perhaps the best in the book, for it is evidently written under the inspiration of good taste and good sense, and gives excellent reasons why words not actually slang are, nevertheless, most undesirable acquisitions to our language. *Donate* and *enthuse*, for example, are unconditionally condemned. The concluding section on the changes in the meaning of words contains much interesting and unexpected information, and shows an extensive acquaintance with literature.

*Transactions of the College of Physicians of Philadelphia.* Third Series, Vol. 25. (Philadelphia, 1903.)

This book contains 56 pages devoted to executive matters such as lists of officers, committees, members, etc., and memorial notices of members who have died during the year. Following are a number of papers which have been read before the College. These occupy 182 pages and include several of considerable interest to neurologists, as well as a number of more general medical interest.

W. R. D.

*The Physiognomy of Mental Diseases and Degeneracy.* By JAMES SHAW, M. D., Member of the British Medico-Psychological Association, etc. (Bristol: John Wright & Co. London: Simpkins, Marshall, Hamilton, Kent Co., Ltd., 1903.)

Books of this character have an undoubted value to the student and practitioner, although their range of utility is limited. The illustrations of mental disease are well selected and typical, but they have more meaning

to persons who are familiar with cases of insanity than to medical students. The representations of the stigmata of degeneracy are so excellent that one hopes that the author will extend the volume at some future time to represent all of the common stigmata of this condition.

*Erbsyphilis und Nervensystem.* Von Dr. JOHANNES BRESLER. (Leipzig: S. Hirzel, 1904.)

This "literarische Studie" has been well made and the author is to be congratulated on having achieved his task so successfully. The book is little more than a collection of abstracts of papers connected with hereditary syphilis and diseases of the nervous system, classified under appropriate headings. No attempt is made to give a critical review of the subject. It consists of 141 pages, twenty-five of which are occupied by a list of the literature arranged alphabetically according to author. The work will be of value to those interested in the study of nervous and mental diseases.

W. R. D.

*Index Philosophique.* Philosophie et Sciences Annexes. Première Année 1902. Edited by N. VASCHIDE and BUSCHAN. (Paris: C. Nand, 1903.)

This is the first number of annual index published under the auspices of the *Revue de Philosophie* which is intended shall be more complete than those heretofore published. It is intended that future volumes shall contain abstracts of the more important papers. Like all publications of this kind, the present volume is of great convenience to those in quest of the literature on certain subjects. There is a general index of subjects and an index of authors. All references concerning a single subject are grouped together. There are a number of typographical errors which fortunately do not seriously impair the value of the book. Errors in spelling English and German words are numerous. On the whole, this book is a valuable addition to our literary armamentarium.

W. R. D.

*Ueber den physiologischen Schwachsinn des Weibes.* Von Dr. P. J. MOEBIUS. Halle, 1903, Carl Marhold. C. Auflage.

This monograph has probably attracted more attention than it deserves, as the comments, criticisms, prefaces to former editions, etc., have expanded it from about 30 pages to over 120. Viewed from a humorous standpoint the author has done much to provoke the gayety of nations. Taken seriously, which is difficult, the book does not prove conclusively that women are so unintellectual as the author seems to think. It is the first of Dr. Moebius's numerous sex studies, but in our opinion the least deserving serious attention.

W. R. D.

*A Practical Treatise on Nervous Diseases for the Medical Student and General Practitioner.* By F. SAVARY PEARCE. New York and London, 1904: D. Appleton & Company.

The typography and illustrating have been well done and the book presents an attractive appearance; further but little favorable can be said.

The book seems carelessly written and errors both of omission and commission are numerous. It is to be regretted that the book was ever published in its present condition. There seems to be little doubt that during the preparation of his book Dr. Pearce was suffering from the disease from which he later died and under the circumstances it would seem but proper that the book be withdrawn from sale. W. R. D.

*Thirty-third Annual Report of the Board of Commissioners of Public Charities of the Commonwealth of Pennsylvania for 1902; also the Report of the General Agent and Secretary. Statistics, and the Report of the Committee on Lunacy.* Transmitted to the Legislature, January, 1903. Wm. Stanley Ray, State Printer of Pennsylvania, 1904.

This report contains a striking plea for money for the care of the insane even if it be necessary to obtain it by eliminating small hospitals of a purely local character which now absorb so much of the public money as to leave little for the insane. Twenty years ago less than twenty private charities applied to the Legislature of Pennsylvania for State aid. At the date of the report the number applying had nearly reached two hundred. Under the circumstances it is not strange that the plea of poverty is loudly made when any attempt is made to secure appropriations for a much needed institution for the chronic insane. The Committee on Lunacy make an earnest application for the erection of additions to existing institutions on the cottage plan as less expensive, more flexible and better suited to the requirements of the chronic insane. The increase in the number of the insane during the year covered by the report was 318 persons.

*Forty-sixth Annual Report of the General Board of Commissioners in Lunacy for Scotland, Presented to both Houses of Parliament by Command of His Majesty.* (Glasgow: Printed for His Majesty's Stationery Office. By James Hedderwick & Sons, 1904.)

The statistics of pauper lunatics or rather of lunacy among the dependent classes show an increase since 1858 of 190 per cent. In January, 1858, there were 5824 insane persons under the charge of the Commissioners. In January, 1904, the number had increased to 16,894 (an apparent increase of 11,758) and a net increase of 11,070. The number of pauper lunatics in private dwellings has increased during the past ten years from 2565 to 2658. The report contains much interesting information concerning Scotch lunacy methods and deserves the careful study of all American alienists.

*Fifth Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts for the year ending September 30, 1903.* (Boston: Wright & Potter Printing Co., State Printers, 1904.)

This report contains details respecting the institutions under the care of the Board of Insanity. These are institutions for the insane, the

epileptic, the inebriate and the feeble-minded. The account of the operations of the Hospital for Dipsomaniacs and Inebriates is not altogether reassuring although we are told the "statistics confirm the belief that considerable good has been accomplished." When we read, however, that the number of escapes has been 52 per cent of all admissions during the year, we can but wish that more might have been induced to remain long enough to acquire some of the "good" which is mentioned. The astonishing statement is made that of 3003 commitments during the decade, 1685 escaped or 56 per cent of the commitments. We agree with the State Board of Insanity that "Such a showing seems to demonstrate the inadequacy of methods hitherto adopted and the necessity of effective custodial care so far as may be required, for the detention of patients who are suitable for treatment." It is evident that the parole system has no legitimate place in an institution for the care of inebriates. Labor and an indeterminate sentence in the judgment of the writer offer the only hope of ultimate benefit to the large majority of dipsomaniacs.

The increment of the insane in public institutions in Massachusetts for 1903 was 339 as compared with 465 during the year 1902. The State Board of Insanity believes that the annual increment will be about 400 per year for the coming five years. The State Colony from which so much has been hoped in the treatment of the chronic insane has made very slow progress. It is hoped that during the year 1904 100 patients of each sex will be provided for in the Colony. During the period which has elapsed since the Colony was established the increment has been at least 1200 insane persons!

*Outlines of Psychiatry. Introductory Lessons Designed for the use of Students of Medicine.* By CHARLES GILBERT CHADDOCK, M. D., Professor of Diseases of the Nervous System. Marion-Sims-Beaumont College of Medicine, Medical Department of St. Louis University. (St. Louis Commercial Printing Company, 1904.)

This is a sensible book and well-designed to excite the interest of medical students in an important branch of medical study. As a good example of its style take the following from the introductory chapter. "Degeneracy is a term very broadly applied. In general it means a condition of development mental and physical that leaves the individual short of the attainment of the average mental and physical development of his race. In many cases a lack of mental balance is manifested which in certain cases becomes genius, in others imbecility or insanity. As a rule mental and physical degeneracy go hand in hand; that is, imperfections of physical development and defects of psychic developments are observed in the same individual. This is a rule, not a law. Many individuals present defects of physical development without any signs of mental degeneracy and *vice versa*: the presence of one is not a demonstration of the other. Where both are observed in one person, they can be regarded as correlated to the general defect of the organization of the



individual." It would be difficult to present the subject of degeneracy more clearly or in fewer words.

The definitions in a chapter on Elementary Psychology are clear and to the point. We notice, by the way, that the author still adheres to the three-fold aspects of the mind, the feelings (emotions), the intellect (ideas) and the will (conduct). However much psychologists may object to this division as artificial and metaphysical it is doubtful if in any other manner it is possible to convey a conception to the student of the order and succession of mental disorder.

We observe that the author's classification of insanity is largely that of Krafft-Ebing. He speaks of Paranoia and does not speak of Dementia Præcox, the present shibboleth of the Kraepelin school. His definition of Paranoia is worthy of quotation: "Paranoia is a form of insanity characterized by delusions of primary and spontaneous origin, which become logically systematized and exercise a predominating influence on the thought, feeling and action of the individual. It is chronic in its course, though presenting exacerbations and remissions and accompaniments of secondary emotional anomalies as reactions to the delusions, which produce at times the features of acute insanity."

The book is such an excellent outline of psychiatry we can but express the hope that the author may at no distant day clothe the skeleton with flesh and give us a full well-rounded treatise upon the subject.

## Pamphlets Received

Is the Journal of the American Medical Association a Partisan Organ? G. Frank Lydston, M. D.

How to Write a Medical Article; A Plea for Plagiarism. G. Frank Lydston, M. D. Reprinted from The Journal of the American Medical Association, November 28, 1903.

Practical Clinical Notes on the Administration and Action of Iodo-Nucleoid or Organic Iodine. G. Frank Lydston, M. D. Reprinted from Medicine, March, 1904.

Multiple Sclerosis with Dementia: A Contribution to the Combination Form of Multiple Sclerosis and Dementia Paralytica. J. Ramsay Hunt, M. D. The American Journal of the Medical Sciences, December, 1903.

Congenital Cysts of the Fourth Ventricle. A Report of Two Cases Associated with Tumor of the Optic Thalamus and Crus Cerebri. J. Ramsay Hunt, M. D. The American Journal of the Medical Sciences, March, 1904.

Tuberculosis of the Spinal Cord: With Report of Cases of Tuberculous Myelitis and of Tuberculous Pachymeningitis. Charles L. Dana and J. Ramsay Hunt, M. D. Medical News, April 9, 1904.

A Contribution to the Pathology of Paramyoclonus Multiplex (Friedreich's Type). J. Ramsay Hunt, M. D. The Journal of Nervous and Mental Diseases, July, 1903.

Acute Infectious Osteomyelitis of the Spine and Acute Suppurative Perimeningitis. J. Ramsay Hunt, M. D. Medical Record, April 23, 1904.

Fifty-fifth Annual Report of the Board of Trustees and Superintendent of the Central Indiana Hospital for the Insane. For the fiscal year ending October 31, 1903.

Twenty-eighth Annual Report (1903) of the New York State Reformatory at Elmira.

A Study of Normal and Pathological Conditions of the Bursae of the Neck with Special Reference to the Subhyoid Bursa. Willis S. Anderson, M. D. Assistant to the Chair of Laryngology, Detroit College of Medicine; Laryngologist to the Harper Hospital Polyclinic, etc., Detroit, Michigan. American Journal Medical Sciences, March, 1904.

Intratracheal Injections; Experimental and Clinical Study of their Value in Diseases of the Lungs. Willis S. Anderson, M. D. Read before the Wayne County Medical Society, February 4, 1904. The Journal of the Michigan State Medical Society, March, 1904.

The Great Value of Drainage and Ice in the Early Stages of Mastoiditis. Sargent F. Snow, M. D. Reprinted from The Journal of the American Medical Association, January 2, 1904.

Report of the Medical Superintendent of the Quebec Insane Asylum for the year 1902 to the Honorable Provincial Secretary.

Bulletins of the Oregon State Board of Health:

1. The Story of Small-pox in Oregon and its Testimony to the Value of Vaccination.

2. Hints upon School Hygiene.

3. The Prevention of Typhoid Fever.

4. Prevention and Cure of Consumption.

Seventh Annual Report of the Loomis Sanitarium and Annex (For the Treatment of Tuberculosis). October 31, 1903.